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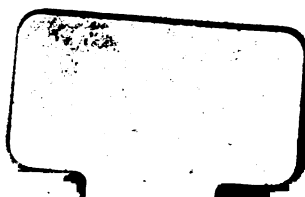
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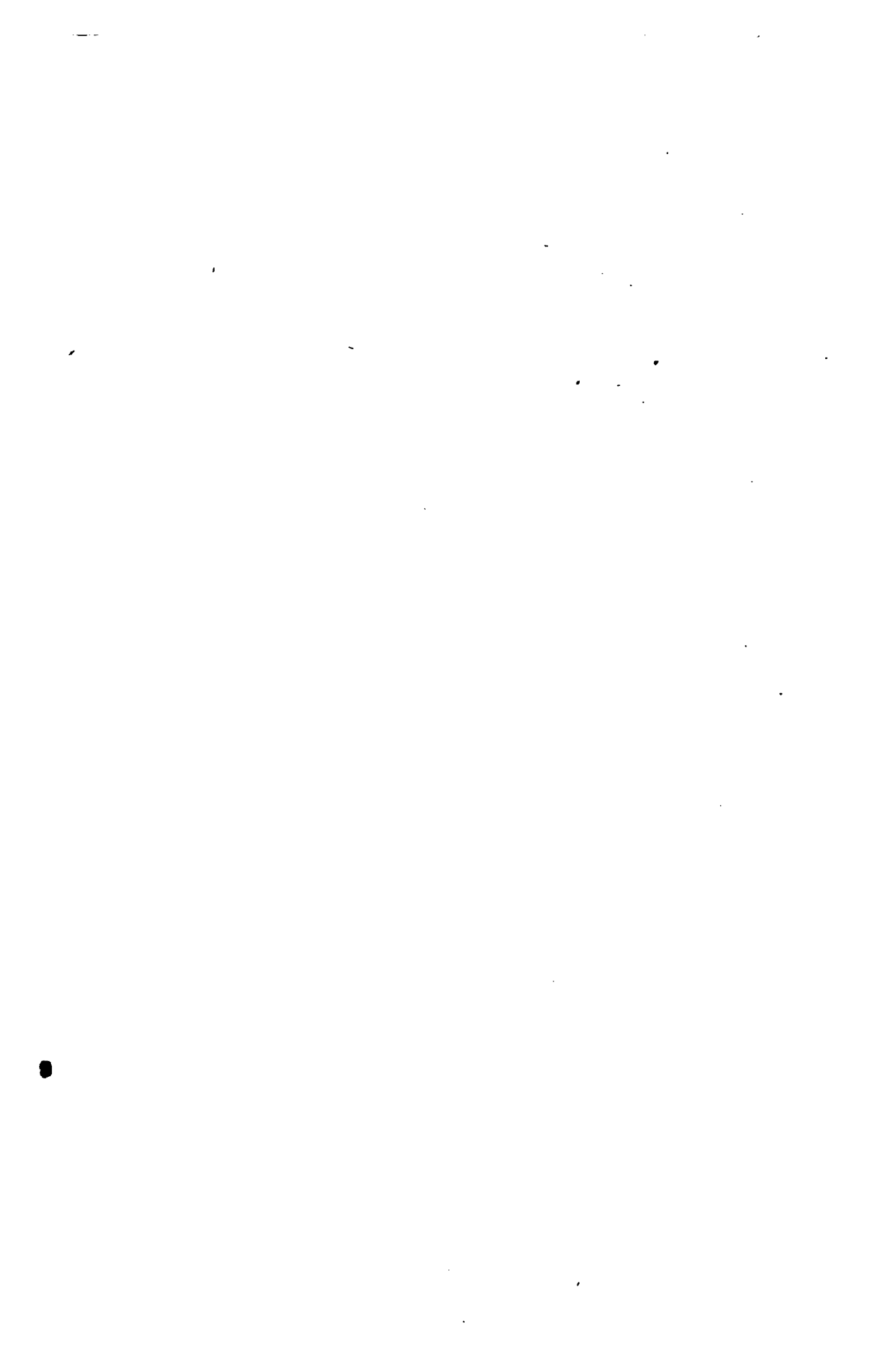
FROM

The Estate of

George Eastwood,
by Exchange.

8 March, 1887.





U. S.-HYDROGRAPHIC OFFICE.

No. 73.

NEWFOUNDLAND AND LABRADOR.

THE COAST AND BANKS OF NEWFOUNDLAND,

AND

THE COAST OF LABRADOR, FROM GRAND POINT TO THE KOKSOAK RIVER,
WITH THE ADJACENT ISLANDS AND BANKS.

U.S. - Hydrographic Office

COMPILED BY

LIEUT. W. W. GILLPATRICK

AND

ENSIGN JOHN GIBSON, U. S. NAVY.



WASHINGTON:

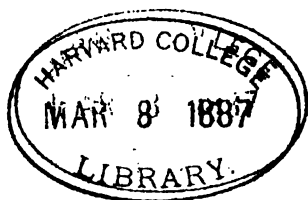
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ADVERTISEMENT.

Compiled from the *Newfoundland Pilot*, Admiralty, London, 1878; notices issued by the U. S. Hydrographic Office; and the latest U. S. Hydrographic Office and British Admiralty charts.

J. R. BARTLETT,
Hydrographer.

U. S. HYDROGRAPHIC OFFICE,
Washington, D. C., July, 1884.

NOTE.

The bearings and courses are in all cases true, and in case of lights, from seaward.

CHAPTER I.

GENERAL REMARKS—CLIMATE—WINDS—FOGS—CURRENTS—BANKS— ICE—PASSAGES.

Newfoundland is situated at the mouth of the gulf of St. Lawrence; it extends from lat. $46^{\circ} 35'$ N. to $51^{\circ} 40'$ N., lying between the meridians of $52^{\circ} 35'$ and $59^{\circ} 25'$ W., and from cape Clear in Ireland to St. John's harbor in Newfoundland the distance by great circle is 1,675 miles.

This extensive island is said to have been known to the Northmen at a very early date, but the first authentic account of its discovery is that by Sebastian Cabot, who, when seeking to penetrate by a northwestern route to China and the Spice islands, observed the land (probably in the neighborhood of cape Bonavista) on St. John's day, June 24, 1497. Although fishermen from all countries soon resorted to its shores, no serious attempt at colonization appears to have been made until 1583, on the 5th August, in which year Sir Humphrey Gilbert took formal possession of Newfoundland in the name of Queen Elizabeth.

In 1623 Lord Baltimore settled a colony in the neighborhood of Ferryland, but after a few years left to establish the more flourishing seaport that now bears his name. From this time the east coast of the island was gradually settled by the English, French settlers occupying the southern shores and making Placentia their capital. By the treaty of Utrecht [1713] Newfoundland was declared to belong wholly to Great Britain, the French retaining St. Pierre and Miquelon islands, with the right to cure fish on a portion of the Newfoundland shore; subsequently arranged to extend from cape Ray, along the west, north, and east coasts, to cape St. John.

Newfoundland is somewhat of a triangular form (the apex being at cape Bauld, the base between capes Race and Ray), and has an area of 40,000 square miles. The shores are indented with deep bays and harbors which nearly all offer shelter to vessels during the summer months. Many of them are magnificent harbors that, in another clime, might be a source both of riches and maritime power. The surface is wild and rugged, and the aspect of the coast far from prepossessing, consisting of steep, sterile, rocky shores, often denuded of all vegetation, or only covered with small trees. The exploration of the interior is rapidly progressing, and has resulted in the survey of several deep valleys, occupied nearly throughout by large lakes, locally known as ponds, which completely intersect the country from the bay of Exploits, Hall and White bays, on the northeast, to St. George and Despair bays, on the south side. Some excellent large timber is found on the west coast and on some few

other portions of Newfoundland, but as a rule it is only at the heads of bays and in sheltered places that trees attain a sufficient size to make masts for even small vessels, and to obtain a mast for a large schooner necessitates generally a long journey into the interior.

Looking inland, from the coast ranges of hills the country generally seems to consist of as much water as land, so numerous are the ponds. From these, streamlets run down every ravine, and the larger valleys contain rivulets, at the mouths of which trout can generally be obtained.

On the east coast, hummocks of granite protrude, locally known as "Tolts." Erratic boulders cover nearly all the principal headlands, and are distributed in great numbers about the shore ranges of hills. The east coast is marked by large and deep ice-scratches, radiating apparently from some point in the interior, which would seem to point to a large glacial system extending over the main part of the island and the isthmus of Avalon.

Mines.—Of the minerals with which the country abounds, two only, copper and lead, have as yet been profitably worked; the former at Tilt and Betts coves, in Notre-Dame bay, and the latter at La Manche, in Placentia bay. The indications have been hitherto little explored, but the increasing facilities of communication will probably lead to valuable future discoveries.

Agriculture is pursued with fair success on the west coast, where grass and cereals of the first quality can be produced. A large tract of fertile soil has been discovered near Gander bay, and there is also good land in the vicinity of Goose bay and Clode sound at the head of Bonavista bay.

Population.—The sea-coast of Newfoundland is the only inhabited portion, and there are but few settlers on the western shore, two-thirds of the entire population being found on the peninsula of Avalon. The census made in 1874 showed a total population of 161,449, including 8,651 on the west or French shore, and 2,416 on that portion of the Labrador coast under the Newfoundland government, excluding the Eskimo natives.

Seal-fishery.—This industry is prosecuted in the months of March, April, and May, the sailing fleet leaving on the 5th of March, while the steam vessels are detained till the 10th of March. The seal-bearing ice is sought immediately and the young seals secured. When full cargoes have been obtained the vessels return, discharge, and start again for a second and occasionally even a third trip.

Cod-fishery.—At the conclusion of the seal-fishery, preparations are made for the ensuing cod-fishery. The system pursued on the east coast is that of hook and line from boats close to the shore, or on shoals in

the immediate neighborhood, while on the south coast, in addition to that method, "bultows" or long lines, with hooks about a fathom distance apart, are laid along the bottom. This plan is also pursued by the French, and is almost exclusively used in the Bank fishery.

About the middle of June the fishermen, frequenting the Labrador coast, equip their vessels and leave, but are often unable to obtain fish till the beginning of July.

All the banks off Newfoundland and Nova Scotia abound in cod and other fish, and during the summer season large fleets of fishing vessels are found at anchor upon them, especially on the Great bank of Newfoundland, bank St. Pierre, Banquereau, Green banks, and Middle ground.

Although 300 years have passed since these banks were first frequented by fishermen, and hundreds of vessels have been annually freighted from their prolific stores, the cod and other fish show no sensible diminution in number.

Winds and weather.—The most prevalent winds throughout the year are those from the westward, but such frequent and rapid changes both in direction and velocity are experienced on all parts of the Newfoundland coast, that none but the most general characteristics can be described.

Easterly winds are generally succeeded by those from SE., which are accompanied by heavy rain.

A SE. gale occasionally veers suddenly to SW. and then NW., blowing with undiminished force; great care should be exercised in preparing for these rapid changes.

Westerly winds generally diminish in strength at sunset, but on those occasions when they steadily prevail until midnight, it frequently occurs that the wind changes to NNE. in the following morning.

Clear weather is generally experienced when the direction of the wind is between west and north.

At the entrances of most of the harbors the wind is generally uncertain in its direction, and frequent squalls are experienced, which at times are so heavy that great caution is necessary when approaching in a vessel under sail, and it is advisable that steam vessels on such occasions should have steam ready.

Fogs occur at all seasons of the year, but are most frequent during the months of June and July; they are more prevalent on the south and east coasts than elsewhere, and seldom extend far inland. With easterly winds they almost constantly prevail; with westerly winds they are not so frequently experienced and are then of short duration.

When within sight of land in foggy weather, the usual effect of fog is that of causing estimations of distance to be erroneously in excess. No great reliance should be placed upon an assumption of position depending upon the distance at which the sound of surf breaking on a

rocky shore can be heard, but on many portions of the coast where steep cliffs extend to the shore, the proximity of a steam vessel to them may be detected by the echo of the whistle.

The fogs that prevail with easterly winds extend high above the sea, and cannot be seen over from the mast-head of a vessel; occasionally they admit the land or other objects being distinguished at half a mile in the day-time.

The fogs that occur in calms, especially after strong winds, are frequently so dense as to conceal a vessel even when within hailing distance; these fogs are usually not so much elevated above the sea, so that when objects are hidden at even 50 yards from the deck of a vessel, they can be seen when the rigging is ascended 50 or 60 feet. Such fogs occasionally last ten days.

On the south coast, fogs are more prevalent at all seasons on that portion between cape Race and St. Pierre island than elsewhere; during the months of June and July they are frequently of long duration, the periods of clear weather being restricted to those during which the wind is blowing from NW. to N.

On the east coast between cape Race and St. John's harbor a fog generally clears directly the wind draws off shore. In the vicinity of Trinity bay not only do fogs prevail with easterly winds, but also with those from SW. Northward of cape Bonavista fog does not occur so frequently as on other portions of this coast.

On the west coast fog is of comparatively rare occurrence.

Currents.—Of the great currents in this part of the ocean, it is generally admitted that the Gulf stream, after passing along the coast of the United States, is deflected to the eastward between the parallels of 35° and 40° N., and continuing on in about an ENE. direction passes south of the tail of the Great bank of Newfoundland during the winter months, but extends over the south extreme of that bank during the summer season.

From a combination of causes, such as prevailing or lately prevailing winds, and the preponderance of polar or tropical waters, the Gulf stream has been found to have an oscillatory motion, so that it would be impossible to assign any definite limits to the margins of this great ocean river.

The velocity of the Gulf stream across the south extreme of the Great Newfoundland bank is very variable, but at times amounts to more than a knot an hour in an ENE. direction. One result of this influx of warm water into a cold atmosphere, is the production of the dense fogs so frequently experienced on the banks, and which materially embarrass and retard navigation.

Although the current between the Great bank and Newfoundland commonly sets to the WSW., occasionally at a rate of nearly one mile per hour, it is not always so; and near the shore, in moderate weather,

during the flood it runs SW., and during ebb to the NE., the former being the stronger. It must also be remembered that to the westward of cape Race, the current so frequently setting to the NW. one mile per hour in the offing is not invariable in strength or direction, but is affected greatly by the prevailing wind. It is observed generally to run in upon the eastern side of the great bays indenting the south coast of Newfoundland, and out on their western side. In the offing it is influenced by the winds, and near the shore by the tides, so that during springs, the stream of ebb runs weakly to the SE., and the stream of flood to the NW., the latter sometimes 2 miles per hour round the headlands.

Captain Cloué, of the French Navy, during his survey of Banquereau, remarks, that he observed the currents to be very irregular in strength and direction, for they sometimes change all round the compass in 24 hours, and have been known to set in a contrary direction to the prevailing wind. The ordinary strength of the current is about half a knot, but it occasionally attains a velocity of more than 2 knots an hour. The fact of the transportation of field ice from the north to the latitude of 43° N., indicates the certainty of a current ordinarily setting to the southwest.

Arctic, or Labrador current.—In addition to the warm waters of the Gulf stream is the cold ice-bearing current from the Arctic seas, which passes to the southward, along the coast of Labrador, at times attaining a velocity of 36 miles a day; being very much influenced near the coast by the winds, it is difficult to estimate the direction or effect for any particular day, but that the general trend is to the southward is shown by the passage of many icebergs; these, however, have been observed to travel north without any apparent reason. The Arctic current does not obtain any great velocity within 20 or 30 miles of the coast between cape Bonavista and cape Spear; it appears to skirt the north side of Fogo islands and extend out to Funk island, thence taking a southerly direction; it often binds the field ice into Notre-Dame and Bonavista bays and the mouth of Trinity bay. It is a noticeable fact that strong easterly gales are requisite to bind the ice into the shore south of St. John's harbor, and that when the wind abates or draws off shore, the ice is quickly driven to sea, leaving a lane of water extending to cape Race.

Abreast of Labrador the Arctic current appears to extend as far to the eastward as the meridian of 40° W., from thence in its course to the southward it encounters the northern edge of the Gulf stream, the position being nearly always distinguishable by the rips, caused by the interlacing of the waters of the two currents.

A branch of the Arctic current flows through the strait of Belle-isle into the gulf of St. Lawrence, and again enters the Atlantic in a southeasterly direction between Cape Breton island and Newfoundland.

This branch current is retarded by easterly winds, which sometimes cause it to run in the contrary direction; it is frequently deflected to the southward towards Cape Breton island by those from the northward, and indeed winds generally act so powerfully and irregularly on the rate and direction of the current and tides in this entrance to the gulf of St. Lawrence, as to render it difficult to say anything respecting them that is not subject to exceptions.

To the eastward of Cape Breton island the current from the strait of Belle-isle intermingles with the main branch of the Arctic current, which, after skirting the east coast of Newfoundland, turns to the westward round cape Race, and from thence passing along the southeast coast of Nova Scotia, continues on to the southward along the American shore to Florida, preserving in a marked degree its distinctive character as a cold current inside the warm waters of the Gulf stream.

The formation of the extensive banks of Newfoundland and Nova Scotia is probably to be attributed to the meeting of the above diverse currents; for the loose delta of the numerous rivers falling into the gulf of Mexico, and borne along in suspension by the force of the Gulf stream, as well as the earthy matter which icebergs are ever bringing from the north, are alike deposited within the comparatively limited space where the two streams come into collision.

During the survey of the Virgin rocks in 1829, the current was found setting WSW. at the rate of one mile per hour.

Captain Cloué remarks on the currents and tides generally around Newfoundland that "They are subject to anomalies of which the causes are unknown. On the east coast, for example, where the current goes generally to the southward, it sometimes happens that for a day or two the direction is reversed, and the current runs to the northward even against the wind."

The tidal streams are very variable, changing with the locality and even with the wind, and it is a generally observed fact, that the prevailing winds of several preceding days have most influence both in direction and force. Between St. Lawrence and Lamelin harbors the flood generally runs SW.; at the south extreme of Fortune bay, to the eastward; north of the same bay, to the westward. There is generally a strong indraught into Placentia and St. Mary's bay; the latter has been the cause of many shipwrecks between cape English and St. Shots. Between cape La Hune and cap Ray the flood runs west irregularly, and continues 2 or 3 hours after high water by the shore. At cape Ray this stream is very variable, generally setting into the gulf of St. Lawrence, sometimes attaining a velocity of 2 knots within a short distance of the cape, gradually changing direction till near Cape Breton island it is found to be running in the opposite direction. On the west coast the flood runs generally SW. and the ebb NE.

While the stream inshore is running in one direction, it sometimes happens that it is going in the exactly opposite direction at 5 or 6

miles from the shore. Vessels beating in the gulf of St. Lawrence would do well to try both currents before making a long stretch seaward.

Ice.—One of the most fruitful sources of danger to which vessels are exposed in crossing the Atlantic are the immense masses of ice, in the form of bergs and extensive compact fields, which are released in the Arctic regions, and drifted by the Labrador current across the direct and much frequented route between the principal ports of Western Europe and North America. In this route, ice is more likely to be encountered from April to August, both months inclusive, although icebergs have been seen during all seasons of the year north of the parallel of 43° N., but not often so far south after August.

These icebergs are frequently one hundred feet high, and of vast extent; they have occasionally been seen as far south as lat. 39° N., and in positions to attain which the Gulf stream must have been crossed. Such phenomena have been attributed to the warm waters of the Gulf stream overrunning the cold Arctic current; whilst the latter, retaining its progress and direction as a submarine current, transports the deeply-immersed ice islands into and across the Gulf stream.

On this subject an able authority has remarked, "No impulsion but that of a vast current, setting in a southwesterly direction, and passing beneath the Gulf stream, could have carried these immense bodies to their observed positions, on routes which cross the Gulf current, in a region where its average breadth has been found to be about 250 miles."

It may possibly assist to realize the enormous magnitude of these ice islands, by stating that the specific gravity of fresh-water ice, of which bergs are composed, is about seven-eighths that of sea-water; in other words, only one-eighth of the entire mass appears above water; the remaining seven portions being immersed beneath the surface of the sea.

Field ice makes its appearance in the parallel of cape Bonavista sometimes as early as the end of December, and though the general southerly set of the Arctic current, skirting the projecting northeast points of Newfoundland, together with prevailing westerly winds, prevent its blocking up the southeast coast, yet it may often be found from that time at a distance of 40 or 50 miles from the land; in March and until June it may be encountered in lat. 43° N.

In the latitude of St. John's, Newfoundland, icebergs have been fallen in with as far east as the meridian of 40° W., being the eastern margin of the cold Arctic current already described. Further south, between the parallels of 40° and 45° N., they have been seen so far east as 39° .

From lat. 39° N. and long. 45° W.—which under ordinary circumstances may be deemed the most southerly position in which to expect icebergs—their probable boundary line to the westward as far as long. 61° W. would be in nearly a straight line towards Halifax.

Instances of an exceptional nature are on record of icebergs having been seen bordering on the parallel of 40° N., within 60 miles WNW.

of the island of Corvo; and of one having been passed in lat. $36^{\circ} 10'$ N. and long. 39° W. Ice fields have been encountered in the latitude of cape Race on the meridian of 45° W., and also in lat. 42° N. and long. 50° W. In November, 1875, icebergs were seen in lat. $46^{\circ} 16'$ N., long. $47^{\circ} 21'$ W., and two large bergs were passed on December 14, 1875, in lat. $44^{\circ} 10'$ N., long. $46^{\circ} 54'$ W.

When in the supposed vicinity of ice, a good lookout is essentially necessary, for even during fog or the darkest night, the position of an iceberg may be ascertained by a peculiar whitening of the fog—known as *ice-blink*—which frequently renders it visible at some distance.

The large bays on the east coast and the heads of those on the south coast of Newfoundland are frozen over about the middle of February, and occasionally remain so till the end of April.

Generally on approaching ice there is a marked diminution in the temperature of the air and sea, especially of the latter. The indications of the thermometer should therefore never be neglected, though it must not be assumed to be an infallible guide.

Vessels should, if possible, always pass to windward of icebergs, to avoid the loose ice floating to leeward.

No rule, however, can be laid down to insure safe navigation, as the position of the ice differs so much in different seasons; but much will depend on the vigilance, caution, and skill of the navigator when crossing the dangerous ice-bearing portion of the North Atlantic ocean.

Passages.—From Europe to Newfoundland, it has been generally recognized that the farther north the port sailed from the better the chance of making a quick passage. Admiral Lavaud, of the French Navy, observes, "The best route to follow on leaving the English channel is to make a little northing, so as to cross the meridian of 18° W. in lat. 50° N., continuing to make northing if bound to the northern ports of Newfoundland; but if to the south part of the island or Gulf of St. Lawrence, southing should be made, so as to strike the Great bank between the parallels of 45° and 46° N."

The usual custom of ship-masters in the autumn is to pass the meridian of 30° W. in lat 55° N., where, though heavy weather is experienced, the winds are more favorable, and the Arctic current assists in the latter part of the voyage. In the spring it is advisable to take the track recommended by Admiral Lavaud, keeping a good lookout for ice when nearing the banks. At this season of the year a lane of water is often found between the ice and the east shore of Newfoundland, extending from cape Race to Bay Bulls, at which latter anchorage a vessel may await in safety a clear passage to St. John's harbor round cape Spear.

Vessels bound to the Gulf of St. Lawrence and wishing to make the land of cape Breton, should, if the weather be foggy, shape a course so as to pass a few miles north of Scatari island; frequently after passing the meridian of Flint island the fog will clear.

BANKS OF NEWFOUNDLAND.

Flemish cap, the easternmost of the Newfoundland banks, has only been partially examined. It extends within the 100-fathom line, NNW. and SSE., about 60 miles, and is 25 miles broad. The least depth known is 72 fathoms near the south extreme in lat. $46^{\circ} 54' N.$, long. $44^{\circ} 38' W.$, the bottom mud and large stones. There is deep water between it and Great bank.

Great bank of Newfoundland.—In crossing the North Atlantic ocean to any port in Nova Scotia or the bay of Fundy, vessels generally traverse the Great bank of Newfoundland. This bank extends nearly 300 miles north and south, between the parallels of 48° and $43^{\circ} N.$, and 280 miles east and west, between the meridians of 48° and $55^{\circ} W.$ The only dangers whose existence have been verified on this bank are the Virgin rocks and bank.

The form of the Great bank is irregular, but it reaches its most eastern limit on the parallel of the Virgin rocks. South of this parallel it trends to the southwest, and decreases in depth. On the parallel of $43^{\circ} N.$ and meridian of $50^{\circ} W.$ the bank falls into deep water, and its 50-fathom edge trends to the northwest.

The general depth of water on the Great bank varies from 30 to 45 fathoms, and the bottom is usually sand, gravel or broken shell.

The Great bank is separated from Ballard bank, near cape Race by a channel about 20 miles wide, having from 80 to 100 fathoms, mud; the northwestern limit of the Great bank has not yet been accurately defined.

Tides and current.—During the survey of the various shoals on the Great bank, by Commander Maxwell, extending from 21st July till 7th August, 1879, little current was experienced, a slight set to the southward only being perceptible, except in the immediate neighborhood of Virgin rocks and Eastern shoals. Round these the fishermen report a regular tide, running to the westward in the morning and changing gradually to the northward and eastward in the afternoon. From the observations made in the surveying vessel *Gulnare* no law could be deduced, but the fact was established that a tidal stream attains there a velocity of three quarters of a knot an hour when there is no sensible stream a few miles away. On the Eastern shoals no perceptible current was observed by the U. S. S. *Alliance* in July, 1880, but the prevailing opinion of fishermen who have had many years' experience on these shoals is that the currents are influenced by the changes of the moon and that their general set is from SW. by S. to W. by S., as noticed by the trend of their cables and by the drift of icebergs.

Jesse Ryder rock.—The *Alliance* made a careful search for this rock (reported to lie in latitude $46^{\circ} 29' N.$, longitude $49^{\circ} 41' W.$), running about 90 miles in the vicinity, including 5 miles in latitude and 10 miles

in longitude, but getting no less than 39 fathoms water. Two of the lines ran directly over the reported position of the rock.

Staff Commander Maxwell, R. N., also made a careful but unsuccessful search for Jesse Ryder rock in 1879.

Nine-fathom bank.—The *Alliance* examined the SW. part of this bank (placed on Hydrographic Office Chart, No. 9, between the parallels of $46^{\circ} 27'$ and $46^{\circ} 40'$ N. and the meridians $49^{\circ} 05'$ and $49^{\circ} 45'$ W.), and also ran two lines over its whole length, obtaining nothing less than 38 fathoms water.

Bertel bank.—A careful examination was made by the *Alliance* both in the reported northern position of this bank (latitude $44^{\circ} 41'$ N., longitude $49^{\circ} 40'$ W.), and the reported southern position (latitude $44^{\circ} 04'$ N., longitude $49^{\circ} 47' 30''$ W.) Lines were run over both positions, but nothing less than 25 fathoms water found.

Nile rocks.—The *Alliance* made two unsuccessful attempts to find these rocks, reported to lie in latitude $44^{\circ} 04'$ N., longitude $49^{\circ} 09'$ W. After spending thirteen days in the search, with lookouts at the mast-heads, running 215 miles and getting 388 casts of the lead, Commander Yates gives it as his opinion that no rock above water exists within the space covered by his lines, which were run in clear weather.

The fisherman that were spoken in the vicinity state that they have never seen the Nile rocks, nor ever had any soundings similar to those reported over Bertel rock.

Ryan's patches.—In searching for these shoals the *Alliance* had the services of Mr. John Ryan, who was the first to report their existence. In 1878 Mr. Ryan reported rocky shoals, with from 5 to 10 fathoms over them, lying between the bearings S. $\frac{1}{2}$ E. and SE. $\frac{1}{2}$ E. from Virgin rocks, distant 20 miles.

The *Alliance* made a thorough search, occupying three days, between the bearings given above, but found no less water than 38 fathoms.

Mr. Ryan stated that when he found these patches he was over a day from the Virgin rocks, weather thick and foggy. He further stated that vessels would be found fishing on them; but none were seen by the *Alliance*, and the fishermen on the Virgin rocks had no knowledge of the existence of the reported shoals.

It is the opinion of many conversant with the fishing banks that Mr. Ryan was out in his reckoning.

Eastern shoals form the group clustered round Nine-fathom bank, extending about $3\frac{1}{2}$ miles in a N. by W. and S. by E. direction with a breadth of 2 miles, and are the easternmost shoals known to the fishermen. Those with depths of 13 fathoms or less are reported to break in heavy weather, and a confused sea is produced in this locality by a strong breeze.

Nine-fathom bank, 300 yards in diameter within a depth of 20 fathoms, near the center of the Eastern shoals, is in latitude $46^{\circ} 26' 33''$ N. and longitude $50^{\circ} 30' 03''$ W.

The least depth found on the bank by the *Alliance* was $10\frac{1}{2}$ fathoms, and the fishermen reported that they had never found less.

Emmeline shoal, the northernmost of the group, bears N., $2\frac{1}{10}$ miles from Nine-fathom bank, and has 12 fathoms water on it.

Jacques shoal, with 23 fathoms water, lies SW. by W. $\frac{1}{4}$ W., 1,300 yards from Emmeline shoal.

Middle shoal, with 14 fathoms, lies SE., 550 yards, and **Corner shoal**, with 13 fathoms water, on the same bearing, 900 yards from Emmeline shoal.

A shoal with 17 fathoms water lies 200 yards S. by W. $\frac{1}{4}$ W. of Middle shoal.

Bogy ledge is the shoalest of four banks, occupying together a space 1,200 yards long and 550 yards wide. The shoalest part, with 12 fathoms water, is situated NE. $\frac{1}{2}$ E., $1\frac{1}{2}$ miles from Nine-fathom bank.

Hapson shoal, with 22 fathoms, lies NNW. $\frac{3}{4}$ W., 300 yards, and a bank with 30 fathoms water S. $\frac{1}{4}$ W., 300 yards from Bogy ledge.

Bogy reef, a shoal a quarter of a mile long, with least water 25 fathoms, lies S. $\frac{1}{4}$ W., 650 yards from Bogy ledge.

Rattlesnake shoal, with 14 fathoms water, bears NW. $\frac{3}{4}$ N., 550 yards, and **Brier shoal**, with 17 fathoms water, NW. $\frac{3}{4}$ W., 900 yards from Nine-fathom bank.

Northwest shoal, with 17 fathoms water, lies W. $\frac{1}{4}$ N., 1,400 yards, and **Boat shoal**, with 16 fathoms water, W. S. W., 1,450 yards from Nine-fathom bank.

Saunders shoal, with 9 fathoms least water, is about 300 yards in diameter, and is situated SE. $\frac{1}{4}$ S., half a mile nearly from Nine-fathom bank.

A shoal of 7 fathoms is reported to lie SE. by S., from Nine-fathom bank, distant nearly 1,100 yards.

Dorr shoal is almost circular in contour, with a deep gulley extending into it from the northward and nearly dividing the shoal. The least water found was 14 fathoms, at 700 yards SSE. $\frac{3}{4}$ E. from Saunders shoal. It is regarded by the fishermen as the best anchorage on the Eastern shoals, there being less liability to lose the ground-tackle than on the other patches.

East and West Gilley are two shoals with 13 and 12 fathoms water, respectively, the latter being situated S. $\frac{3}{4}$ E., $1\frac{1}{8}$ miles from Nine-fathom

bank. Both are about 300 yards in diameter and lie S. by W. $\frac{1}{4}$ W. and N. by E. $\frac{1}{4}$ E., a little more than 200 yards from each other.

Red-wing reef, with 20 fathoms water, bears W. $\frac{3}{4}$ S., 1,150 yards from Saunders shoal, and *The Nubble* 850 yards farther in the same direction. The fishermen report 16 fathoms to be the least depth on this shoal, but no less than 27 fathoms could be found. *Cusseta shoal*, with 16 fathoms water, lies E., a quarter of a mile from Saunders shoal, and *Ireland*, a bank with 24 fathoms least water, 1,150 yards farther, on the same bearing.

Plymouth rock, with 15 fathoms water, lies W. $\frac{1}{4}$ S., 900 yards, and *Red-wing shoal*, with 19 fathoms water, in the same direction, 1,300 yards from Dorr-shoal. Both these are very small rocks. *Burnt ground*, a shoal 200 yards in extent, with 25 fathoms least water, is situated W. $\frac{1}{4}$ N. 867 yards from Red-wing shoal. *Southeast shoal*, a small bank with 28 fathoms, bears ESE. $\frac{3}{4}$ E., 700 yards from Dorr shoal; and *Southwest shoal*, 450 yards long and 300 yards wide, with 21 fathoms least water, lies S. by W. $\frac{1}{4}$ W., 700 yards from West Gilley.

Virgin rocks is the name given to a group of banks ranging in depth from 3 to 30 fathoms, and occupying a space 7 miles long in a N. by W. and S. by E. direction and $1\frac{1}{2}$ miles wide at the broadest part. On these shoals is prosecuted the most important fishery, by hook-and-line, of the banks of Newfoundland.

Main ledge is the largest bank, covering a space 1,400 yards long and 1,100 yards wide, with depths less than 20 fathoms. The shoalest spot is a small pinnacle with 3 fathoms water, in latitude $46^{\circ} 26' 57''$ N. and longitude $50^{\circ} 47' 40''$ W. (depending on Chain Rock battery, St. John's, being in $52^{\circ} 40' 47''$ W.).

A rock with 4 fathoms water lies N. $\frac{3}{4}$ W. 200 yards nearly, and a rock with $5\frac{1}{2}$ fathoms water SW. $\frac{1}{4}$ W., a quarter of a mile from the shoalest spot.

These three rocks are small shoals rising above the general depth of 8 to 10 fathoms connecting them.

A shoal with 9 fathoms lies S. $\frac{1}{2}$ W., 650 yards from the shoalest part of Main ledge, and a bank with 10 fathoms water lies close to the east extreme.

South shoal, situated S. by E. $\frac{3}{4}$ E., $1\frac{1}{2}$ miles from Main ledge, though with deeper water, is reported by the fishermen to be a more dangerous bank than Main ledge. The mass of uneven ground causes the sea to rise more readily and break more heavily than on the small pinnacles of Main ledge.

The shoalest water found was $4\frac{3}{4}$ fathoms, and two other rocks with 5 fathoms water bear NW. $\frac{3}{4}$ W. from this rock, the farthest being distant

300 yards. The bank occupies a space 1,200 yards long and 700 yards wide, with depths less than 20 fathoms. Two small rocks with 9 and 10 fathoms, respectively, lie near the north and east edges of this bank.

These shoals are the only dangers on Virgin rocks in ordinary bad weather, but several others are reported to break in autumnal gales, and the uneven ground, with the tidal streams about the shoals, produce a confused sea even in strong breezes.

Hummocks.—The hummocks comprise the various shoals of the northernmost group of the Virgin rocks, viz: Deepwater banks and Prairie shoal. The former have 22 to 23 fathoms water on them, and the northernmost is situated N. $\frac{1}{2}$ E., $3\frac{1}{6}$ miles from Main ledge.

Prairie shoal occupies a space about 800 yards long and 400 yards broad within the depth of 20 fathoms. The shoalest part, with 9 fathoms water, is situated N. $\frac{1}{2}$ E., $2\frac{1}{6}$ miles from Main ledge, and is said to break in bad weather.

Shoals.—*Abstract shoals* are two rocks, with 17 fathoms water, lying NNE. $\frac{3}{4}$ E. and SSW. $\frac{3}{4}$ W., nearly 600 yards from each other, the southernmost bearing N. $\frac{1}{2}$ W., $1\frac{1}{6}$ miles from Main ledge. *Maloney ledge*, with 14 fathoms water, lies N. $\frac{1}{2}$ E., $1\frac{1}{6}$ miles from Main ledge.

Northwest shoals have 11 and 14 fathoms water, respectively, and bear NW. by W. $\frac{3}{4}$ W. and SE. by E. $\frac{3}{4}$ E. from each other, distant 450 yards; the shoal of 11 fathoms bears N. $\frac{1}{2}$ E., 1,800 yards from Main ledge.

Brier shoals have 13 and 17 fathoms water. The former lies E. $\frac{1}{4}$ N., 1,200 yards from Main ledge, and is 400 yards long. The latter is separated from the bank with 13 fathoms water by a gully about 100 yards wide.

Southwest rock, a small pinnacle with 14 fathoms water, lies just south of Main ledge, bearing S. by W., 1,267 yards from the shoalest part.

Portuguese shoal lies about a mile WSW. from Southwest rock. The fishermen report a depth of 18 fathoms only on this bank, but not less than 29 fathoms could be found.

Bucksport shoal, with 15 fathoms water, is separated by a small channel from the east end of South shoal.

Pea patch, with 12 fathoms water, is a small rock situated SW., 600 yards from South shoal.

The Lone-star, with 19 fathoms, lies S. by E. $\frac{3}{4}$ E., 250 yards from Pea Patch.

Harper shoal, with 11 fathoms water, is 500 yards in extent, and is situated SSE. $\frac{3}{4}$ E. 800 yards from South shoal.

Bryant shoal, with 14 fathoms water, is 200 yards in diameter, and lies SE. by E. $\frac{1}{2}$ E., three-quarters of a mile from South shoal.

The Bulldog is a small shoal with 17 fathoms, lying SE. $\frac{1}{2}$ S., 1,800 yards from South shoal; and the Stud-horse, with 18 fathoms, bears SW. $\frac{3}{4}$ S., 100 yards from the Bulldog.

Old South shoal is nearly 800 yards long within the depth of 20 fathoms. The shoalest part has 17 fathoms water, is close to the east extreme, and bears SE. $\frac{3}{4}$ S., $1\frac{1}{2}$ miles from South shoal.

Cabinet shoal, the southernmost of the Virgin rocks, is a small bank with 20 fathoms water, situated S. by E., $3\frac{1}{2}$ miles from Main ledge.

Soundings.—The *Alliance* obtained several soundings over 60 fathoms in the space to the westward of the Virgin rocks, between the meridians of 51° and 52° W. and the parallels 46° and $46^{\circ} 21'$ N., where very few soundings are marked on the Chart. The master of the fishing schooner *Mary Mathesen* stated that he had found similar soundings in the same locality and that they had given rise to a doubt in his mind regarding his position.

Green banks.—The western part of Great bank is known as Green banks, the least depth of water on which is 30 fathoms, stony bottom.

The western portion of Green banks is separated from the eastern by a channel of deep water (60 fathoms) in about long. 54° W.; the deep water gully between this bank and that to the westward (bank St. Pierre) is 14 miles wide, having from 70 to 90 fathoms, it is a serviceable feature to verify the longitude.

Reported shoal.—The master of the Norwegian bark *Anna Delices* reports that on June 23, 1881, in latitude $45^{\circ} 45'$ N. and longitude $54^{\circ} 20'$ W., soundings were obtained in 5 fathoms, the bottom being soft and muddy.

Bank St. Pierre has its eastern limit nearly on the meridian of $55^{\circ} 20'$ W., and attains its southern boundary in lat. 45° N., long. 56° W. The bank then trends about NW. for 120 miles to its western margin in lat. 47° N., long. $57^{\circ} 30'$ W.

The soundings on this bank vary from 20 to 45 fathoms, the ordinary bottom being sand and broken shells.

Birds.—The approach to the banks of Newfoundland is generally evidenced by an increasing number of sea fowl around the vessel. Hagg-downs, a species of gull heavy of flight, are seen all across the Atlantic, but on the banks they, as well as divers, and other sea fowl, become very numerous.

Whale's hole.—Forty-five miles to the eastward of Green Bank is a depression in the bottom, in which the average depth is 65 fathoms. It is about thirty miles long N. by W. and S. by E., with an average breadth of 15 miles, except at the southern extremity, where it is less than 5. The southern extreme is near the parallel of 45° N.

CHAPTER II.

NEWFOUNDLAND, SOUTH COAST—CAPE RACE TO MAY POINT.

Cape Race is the southeastern extremity of Newfoundland. It bears from cape Ballard SW. by S. distant $9\frac{1}{4}$ miles, and is distinguished by a light-house standing close to the keeper's dwelling, with a beacon in front. At its extremity there is a detached wedge-shaped rock, 40 feet high.

The land about the cape appears low and flat, in comparison with cape Ballard or cape Pine, but cliffs of slate, from 100 to 200 feet high, face the sea there in nearly vertical strata. The land rises gradually, and in clear weather there will be seen between 10 and 12 miles to the northeast, a rocky range known as the Red hills, rising 710 feet high.

Cape Race is bare of trees, and has a brown, desolate, and barren appearance; but in sheltered hollows and along the courses of the rivulets there is a stunted growth of spruce, fir, and alder. The rocks are of the Silurian system, and are thinly covered with peat and bog.

Boats may land in moderate weather in coves east and west of the light-house, but the ordinary landing is in Cape cove, about half a mile to the northeast.

Telegraph.—Vessels passing this cape are reported by telegraph to St. John's.

Light.—The light-house on cape Race is 40 feet high, circular, the southeast face painted red and white in broad vertical stripes, and shows at the height of 180 feet above the sea a *revolving* white light, attaining its greatest brilliancy every *half minute*, and visible from seaward in clear weather between the bearings of NE. by N. and SW. by S. at a distance of 19 miles.

A conical beacon stands 50 yards SSE. $\frac{3}{4}$ E. from the light-house.

Fog signal.—In thick or foggy weather a *whistle* about 83 yards SSE. $\frac{3}{4}$ E. of the light-house will sound blasts of *ten seconds'* duration at intervals of *fifty seconds*. It has been heard from a distance of 7 miles.

Tides.—It is high water, full and change, at cape Race at 7h. 00m. Springs rise $6\frac{1}{2}$ feet and neaps 5 feet.

Currents.—As fogs greatly prevail along the south coast of Newfoundland, especially during June and July, it is necessary that the ordinary set of the currents, and dangerous indraught into the deep bays, should be known and guarded against.

Soundings.—When in the vicinity of capes Race and Pine, care should be taken to obtain frequent casts of the lead; the soundings will be found regular, and of moderate depth.

Ice.—It should be remembered that icebergs may be met with off this coast at nearly all seasons. In March, April, May, June, and sometimes July, field-ice is often encountered, either on the banks or nearer to Newfoundland.

Tommy rock, near the north extreme of Ballard bank, is small in extent, has a depth of nine fathoms water over it, and lies N. $61^{\circ} 30'$ E., $10\frac{1}{2}$ miles distant from cape Race light-house.

Ballard bank lies parallel to the coast about 7 miles ESE. of cape Race; it is 15 miles in length, with a greatest breadth of 4 miles, gradually tapering to the northeast, where at its extremity it is only half a mile wide. At the north end it is rocky and the soundings irregular, but they are less variable towards the southern extremity.

The sea, on the northeast portion of this bank, breaks during heavy winter gales; and probably also on the whole of the 7 and 8 fathoms patches near the cape.

Garrett rock, with a depth of eight fathoms water over it, is small and lies N. $81^{\circ} 30'$ E., a little more than nine miles from cape Race light-house.

A bank, with 13 fathoms water over it, bears N. $88^{\circ} 30'$ E., $8\frac{1}{4}$ miles from cape Race light-house.

Pig bank, a small fishing bank with 18 to 20 fathoms water, over rock, lies S. by W. $\frac{1}{2}$ W., 5 miles from cape Race light.

Directions.—In approaching cape Race from the eastward, after crossing Great bank, the water gradually deepens to 90 and 100 fathoms; after which, on Ballard bank, it rapidly shoals to about 25 and 15 fathoms.

After crossing this bank the water again deepens to 40 fathoms, and then shoals gradually to the shore, which is generally bold, so that 7 fathoms water is often found at a distance of 200 yards from the cliffs.

Coming from the westward in thick weather, the soundings are so regular that a depth of 30 fathoms may be easily maintained, and both cape Pine and cape Race rounded with safety. As the soundings after passing cape Race deepen, a cast of 60 to 80 fathoms will show the navigator that he has rounded this cape, and, with attention to the lead, a course may be steered to the northeastward with confidence.

Mistaken point, 100 feet high, is a green hummock rising from slate cliffs, 4 miles westward of cape Race. Between it and the cape is Shingle head, with slate cliffs 150 feet high.

Beacon.—A cairn stands on Mistaken point, which will be found of much use when making the coast in foggy weather.

Cripple rock.—At nearly 2 miles westward of cape Race is Cripple rock with $4\frac{1}{2}$ fathoms water; it is supposed to be a small pinnacle on which the sea seldom breaks. To pass south of it, keep cape Ballard open of cape Race, until cape Pine is open of Mistaken point, and vice versa. In the caplin season—June and July—between 200 and 300 boats are engaged in fishing along this coast.

Several shoals, with 6 to 8 fathoms water, lie off the coast between Mistaken point and cape Race.

Freshwater point, 2 miles W. by N. from Mistaken point, is low, and composed of sharp pointed slate rocks, with the land rising in the rear; in the cove north of the point is a waterfall 100 feet high.

Trepassey bay, 12 miles wide by 4 miles deep, is formed between Freshwater point and cape Pine. Within it is Portugal cove, Biscay and Mutton bays, and Trepassey harbor; between Freshwater point and Portugal cove the cliffs are 200 feet high, and the shore rocky and difficult of access. Upon this shore many wrecks have occurred in foggy weather, caused doubtless by the indraught, which sometimes runs 2 miles an hour on the east side of this bay. Sailing vessels should be careful to keep a good offing, as the wind often falls light near the shore, and the drift of the sea and current are nearly always towards the land.

Portugal cove is rocky and dangerous. On the eastern side a few families live, who farm as well as fish, and have a good stock of cows, horses, and sheep.

Cape Mutton is a round hill, 330 feet high, rising from slate cliffs; it divides Biscay and Mutton bays. Both these bays should be avoided by sailing vessels. Biscay bay is half a mile wide and 2 miles deep, and at its head is a stream abounding with trout and salmon. With off-shore winds there is safe anchorage for steam vessels in the middle of the bay in 5 fathoms, sand.

Trepassey harbor.—Powles head is the termination of a peninsula which forms the southern shore of Trepassey harbor, and is connected to the mainland by a narrow shingle beach; this peninsula protects Trepassey harbor and separates it from Mutton bay. Powles head is 120 feet high, whilst the land on the north shore rises to the height of 450 feet. On this account it is often difficult when coming from the eastward to distinguish the entrance to Trepassey harbor.

At Beach point, the north end of the peninsula, the settlement commences and contains a population of 700 persons. The village, with its neat Roman Catholic chapel, is on the eastern side of the harbor, and may be seen from seaward over the beach of Mutton bay. The ordinary anchorage is in 5 fathoms, mud, 600 yards above Beach point, and is fairly sheltered; but the best anchorage is above Meadow point, where a vessel may be completely land-locked, and good anchorage

may be had in 7 fathoms, muddy bottom, with Daniel point bearing N. by W., Roman Catholic chapel SE. $\frac{1}{2}$ E., and Sims point NE. by N.

It should be remembered that during the winter, if the ice is heavy on the east coast, blocking up all access to St. John's, and the eastern harbors, vessels may safely enter Trepassey harbor, which is always open. A road leads to St. John's, a distance of 70 miles. Vessels bound into Trepassey harbor during thick weather should endeavor to make the land on the west side of Trepassey bay about Baker head, which is bold, and lies about 3 miles SW. from the entrance to Trepassey harbor.

From cape Pine to Baker head, a distance of 4 miles in a NE. direction, the land is barren, and from Baker head to the entrance of Trepassey harbor it is covered with brushwood.

Water may be readily obtained from a stream near Meadow spit.

Pilots.—Fishing boats from Trepassey are nearly always to be found in the offing, and the fishermen are generally qualified to act as pilots.

Dangers.—Shoal water extends 200 yards S. by W. $\frac{1}{2}$ W. from Powles head; and from the next point east of it a reef runs out 600 yards in the same direction, upon which the sea always breaks.

Savdown rock, with 6 feet water on it, lies W. $\frac{1}{2}$ S. from the first gravelly beach a mile northeast from Powles head, and is cleared by keeping Sims point at the southeast side of entrance to the northeast arm, open of Beach point, NNE. $\frac{1}{2}$ E.

Abreast of Savdown rock, a bar of sand extends across the harbor, over which 5 fathoms can be carried at low water.

Meadow bank, on the north side of the harbor, is cleared by keeping Baker head, the outer extremity of the land on the west shore SW. $\frac{1}{2}$ S. open south of Skinner rocks. On both sides of the harbor the water is shoal and rocky.

Whistling buoy.—A Courtenay automatic whistling-buoy is moored in Trepassey bay, with Powles head bearing N. 15° E., distant $1\frac{1}{2}$ miles. This buoy will be removed for the winter.

Directions.—To enter Trepassey harbor with a fair wind, run in for Baker head, and then keep rather towards the shore of Powles head. Proceed up the harbor with the southeast shore of the northeast arm in line with Beach point about NNE. $\frac{1}{4}$ E., which will lead in the deepest water.

When about 600 yards above Beach point, anchor in 5 fathoms, with Beach point and Powles head in line, bearing SSW. $\frac{1}{2}$ W. Should the wind be contrary, a vessel would have a channel 800 yards wide to work in, and the lead must be the guide.

Tides—It is high water in Trepassey harbor, full and change, at 7h. 0m.; springs rise $6\frac{1}{2}$ feet, neaps 5 feet. The tidal stream is weak, being only half a mile an hour.

Cape Pine is of slate cliffs, 200 feet high; on the southwest side the land is not so steep; but everywhere the coast is fringed with slate rocks in nearly vertical strata. The cape is bare of trees, and the land rising at the back is rocky and barren. In moderate weather boats may land in Arnold's cove, about three-quarters of a mile west of the cape, or in a cove $\frac{1}{2}$ of a mile to the northeast. There is a good road from the light-house to Meadow bank on the north side of Trepassey harbor.

Light.—On cape Pine is a light tower which exhibits, at 314 feet above high water, a *fixed* white light, visible from seaward in clear weather between the bearings SW. $\frac{1}{2}$ W. and ESE. $\frac{1}{2}$ E. from a distance of 24 miles. The tower is circular and painted with red and white horizontal bands. Cape Freels lies one mile W. $\frac{1}{2}$ S. from cape Pine, and being low, the light is seen over it, and is not obscured by the intervening land until on a bearing ESE. $\frac{1}{2}$ E.

Freels rock, the only off-lying danger, is a small rock with 3 fathoms water on it, lying SW. by W. 3 miles from cape Pine light-house. Powles head, bearing NE. open of the cape, leads east of the rock, and Gull island point, N. by W. $\frac{1}{4}$ W. and open of St. Shots Western head, leads westward of it. There is a clear channel with 10 and 12 fathoms water between it and the cape.

St. Shots cove, 3 miles WNW. $\frac{1}{2}$ W. of cape Pine, is open and exposed. Many shipwrecks have taken place in its vicinity, and principally on the Eastern head, from which a ledge of slate rocks extends 200 yards to the southwest. In most cases these wrecks have occurred during fog, and too often there has been a neglect of sounding, and a want of attention to the ordinary set of the currents.

A few families reside on the east side of St. Shots cove, and are always ready to assist the shipwrecked and distressed mariner.

St. Mary's bay.—The entrance to this bay is about 20 miles wide, between Western Head and Lance point, and 30 miles deep. Across the mouth of this bay there is not more than 40 fathoms water, but farther in the water becomes deeper, and on the west side of Great Colinet island there is 110 fathoms, mud; it contains several good harbors. The land at the head of the bay rises in ridges, and is partly wooded with spruce, willow, and yellow birch.

The few inhabitants are all engaged in fishing, and as codfish are large and numerous around the headlands, especially when caplin strike in upon the shore, they are pursued and caught, not only by the residents, but also by fishermen who come from other parts of Newfoundland. The greatest catch of fish is made with the seine, but the more ordinary means is by hook and line.

Fogs are much less frequent at the head of this bay than at the entrance.

A vessel of heavy draught should not approach the eastern shore of St. Mary's bay above cape English nearer than $2\frac{1}{2}$ miles, or to a less depth than 40 fathoms.

At the head of St. Mary's bay are Salmonier river, Colinet and North harbors; these harbors enjoy a much finer climate than that of the sea-board.

The land, when brought under cultivation, is well adapted for pasture, potatoes, or for the growth of the hardier cereals.

Cape English, a precipitous bluff 330 feet high, on the east side of St. Mary's bay, appears, when seen from a southwest direction, like an island. It is 10 miles from St. Shots cove, and between it and Gull island point is Holyrood bay, which, being open and exposed to the sea, affords no safe anchorage. Behind the long gravel beach which forms the shore of this bay is Holyrood pond, 11 miles in length and a mile wide. A few fishermen reside at the north end of the beach. During spring, when the waters rise from the melting of snow, the beach is broken through, and during summer the channel becomes deep enough to permit the entrance of small fishing boats, but heavy seas in autumn usually close it again, so that during winter the pond has no outlet. It is deep, and abounds with codfish, trout, and salmon.

Nine miles from cape English is the entrance to St. Mary's harbor.

Dangers.—Bank Rock, with 4 fathoms water on it, lies N. $\frac{3}{4}$ W. $4\frac{3}{4}$ miles from cape English; to pass west of it, keep Shag rock, at the south end of Holyrood bay, well open of cape English, until Lizzy point in St. Mary's harbor is in line with Doubleroad point NE. by E.

Greet rock, with $4\frac{1}{2}$ fathoms water on it, lies three-quarters of a mile from the shore, and SSW. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles from Lahaye point.

Lahaye shoal, composed of large rounded stones, extends SSW. $\frac{1}{2}$ W. 800 yards from Lahaye point, and upon it the sea breaks heavily.

St. Mary's harbor is the first deep inlet after passing the high bluff of cape English; it is a mile wide at the entrance, and 4 miles deep.

There is fair anchorage in 6 fathoms water, sand, abreast of the village on the south side of the harbor, but the best shelter is found 2 miles farther up in 7 fathoms, mud. Occasionally at the lower anchorage a heavy ground swell is experienced.

The village contains about 750 inhabitants, who are mostly employed in the fisheries. The land, where cleared of stones, bears good crops of oats, potatoes, and hay; it is cultivated in small patches, and cattle and sheep have fair pasture. Good water can be obtained at the head of the harbor, and small supplies of milk, eggs, and butter, at the village.

Dangers.—The Coalpit, a rocky shoal, with 3 fathoms water on it, lies a quarter of a mile eastward of the lower anchorage, and 600 yards from Coalpit point.

The Paddock, a rocky shoal, with 4 feet water on it, lies above the usual anchorage off the village, and north of the northwest beach near the head of the harbor.

Light.—A *fixed white* light, elevated 63 feet above the sea and visible 9 miles, is exhibited from a light-house on Lahaye point. The light-house is iron, circular in shape, and painted with alternate *red* and *white* horizontal bands, *three red and two white*, which are continued around a storehouse attached.

Position: Latitude, $46^{\circ} 54' 20''$ N.; Longitude, $53^{\circ} 36' 40''$ W.

Tides.—It is high water in St. Mary's harbor, full and change, at 7h. 40m.; springs rise $7\frac{1}{2}$ feet, and neaps 5 feet.

Directions.—There is no difficulty in entering St. Mary's harbor when the weather is sufficiently clear. A vessel after passing cape English should keep Shag rock, at the south end of Holyrood bay, well open, or well shut in with the cape, until Doubleroad point is in line with Lizzy point, bearing NE. by E.; when northward of Bank rock, steer about NE. $\frac{1}{2}$ E. for the entrance of the harbor, so as to give Doubleroad point a prudent berth. When within this point, haul to the southward and anchor in 6 fathoms, sand, with the chapel bearing S. by W. $\frac{1}{4}$ W.; or a more secure anchorage will be found farther up the harbor, with Doubleroad point, shut in with Lizzy point, in 6 fathoms, mud.

Mal bay, to the northwest of St. Mary's harbor, runs 3 miles to the NNE., and, as its name denotes, offers no safe anchorage except close to the head, in 6 fathoms, sand.

Shoal bay is open to the prevailing winds, and should be avoided. A rock, lying WNW. $\frac{3}{4}$ W. a quarter of a mile from Shoal bay point, is cleared by keeping Muscle pond point open of Admirals beach.

Great Colinet island is 330 feet high, 4 miles in length, and a mile in breadth; it is generally bold-to, and the southeast point is about $4\frac{1}{2}$ miles WNW. $\frac{3}{4}$ W. of the entrance of St. Mary's harbor. At its north end there is limited anchorage, called Mother Hicks cove, affording shelter from southerly winds.

Little Colinet island is 235 feet high, a mile in length, and half a mile in breadth; it is separated from Great Colinet island by a deep channel, $1\frac{1}{2}$ miles wide. Both islands have bare hills rising from rocky cliffs.

Colinet passage.—There is deep water on either side of Colinet islands, but the eastern passage is preferred. It is one mile wide in its narrowest part, and clear of danger, except a rock lying WNW. $\frac{3}{4}$ W. of Shoal bay point.

Salmonier river.—The entrance to this river, about 6 miles NE. $\frac{1}{2}$ E. of Little Colinet island, is $\frac{2}{3}$ of a mile wide; it narrows gradually, and

at the distance of 6 miles within receives the waters of a shallow stream over rocky bottom.

There is good anchorage above the curved gravel beach on the north side, but a shoal pit of sand extends 200 yards from the shore, which will be cleared by keeping the south point of the entrance open until the valley of Little harbor opens ESE. $\frac{3}{4}$ E.

Shoal water also extends from the sandy beach in front of Little harbor, and may be cleared by keeping Bluff head and Cross point in line bearing NE. $\frac{3}{4}$ N. Little harbor is the outlet of a fine run of fresh water, and affords within the sandy beach safe winter shelter for fishing craft.

There is a Roman Catholic church on the south side of the harbor, and the inhabitants number about 500.

Directions.—As both shores of this river are clear of danger with the above exceptions, no particular directions are required. After passing either side of Great Colinet island, a NE. $\frac{1}{4}$ E. course will lead up to the entrance, and, following the south shore, anchorage may be had in 8 fathoms, mud, abreast of the church; or a vessel may proceed farther and anchor above the curved gravel beach on the north side, in 6 fathoms.

Tides.—It is high water in Salmonier river, full and change, at 7h. 40m.; springs rise $7\frac{1}{2}$ feet, and neaps 5 feet.

Colinet harbor is 6 miles NNE. $\frac{1}{4}$ E. from Little Colinet island, and 2 miles NW. $\frac{3}{4}$ W. from the entrance of Salmonier river. The entrance between Pinchgut island on the east, and Johns pond on the west, is a mile wide, and at 3 miles up the harbor above Pinchgut island there is good anchorage in 7 fathoms, mud.

The only settlers, about 80 persons, reside at Johns pond, where there is fair anchorage for small vessels, and more convenient for the fisheries than in the harbor.

Good water may be obtained from a river at the head of the harbor.

Dangers.—**Johns shoal**, extending 500 yards ESE. $\frac{3}{4}$ E. from Johns pond beach, is cleared by keeping Little Colinet island open of Bushy point SSW. $\frac{1}{4}$ W. **Back shoal**, a flat of sand and stones, extends from Pinchgut island 500 yards and is cleared by keeping Davis point at the head of the harbor NNE. $\frac{3}{4}$ E. open of Half island, and paying attention to the soundings.

The best anchorage is abreast of Half island, which is low and sandy, on the north shore, and joined to the main at low water.

Directions.—After passing Little Colinet island, steer NNE. $\frac{3}{4}$ E. 5 miles, until abreast of Johns point, beyond which will be seen the houses at Johns pond, and Pinchgut island ahead; then steer N. by E. $\frac{1}{4}$ E. up the harbor, keep well over to the north side, but so as to have Davis point, bearing NNE. $\frac{3}{4}$ E., open of Half island, and with the lead going, anchor when abreast of Half island in 7 fathoms, mud.

Tides.—It is high water in Colinet harbor, full and change, at 7h. 40m.; springs rise $7\frac{1}{2}$ feet, and neaps 5 feet.

North harbor.—The entrance to North harbor is 2 miles N. $\frac{1}{4}$ W. of Little Colinet island, and separated from Colinet harbor by the land of North harbor point. Cape Dog, rising 330 feet above the sea, with perpendicular cliffs of slate, lies on the west side of the entrance.

There are no dangers except near the shore, but the harbor is open to prevailing southwest winds, and therefore cannot be recommended as a secure anchorage except for small craft, which may anchor in safety in 3 fathoms, mud, about 4 miles within the entrance, under shelter of a beach on the north side.

There are about 70 persons residing on the shores of this harbor; the energies of the Newfoundland people being all directed to the fisheries, these remote harbors are not much frequented.

Branch cove.—Between North harbor and Lance point there are a few coves indenting slightly the western shores of St. Mary's bay, but that of most importance is Branch, which is 7 miles NE. of Lance point, and where about 150 fishermen reside in great comfort.

It is the outlet of a little river, over the bar of which at high water in moderate weather fishing boats are able to cross, and lie secure.

Branch head, the southwest extreme of the cove, is a steep bluff 260 feet high, and at its extremity are two high rocks called Hare's ears.

Dangers.—On the northwest side of St. Mary's bay are the following dangers:—

Redhead rock, with 4 fathoms water on it, lies NE. by E. $\frac{3}{4}$ E. $4\frac{1}{2}$ miles from Hare's ears, and SE. $\frac{3}{4}$ S. 2 miles nearly from Red head.

Beckford shoal, with 7 fathoms over it, lies 3 miles S. by W. $\frac{1}{2}$ W. from Redhead.

Muscle rock, having 6 fathoms on it, is dangerous in a heavy sea; it lies SE. by S. $1\frac{1}{2}$ miles from Hare's ears.

Redcove rock, with 3 fathoms on it, lies S. by E. $\frac{1}{4}$ E. 2 miles nearly from Hare's ears, and E. 2 miles from the east point of Gull cove.

Lance point, the southwest extreme of St. Mary's bay, lies $6\frac{1}{2}$ miles SW. of Branch head; the point is low, but the land a mile northward rises to the height of 200 feet. Shoal water extends 400 yards south and east of the point; and Lance rock, with 12 feet water on it, lies S. by W. distant $1\frac{1}{2}$ miles from the point.

Bull and Cow are black slate rocks, 30 feet high, with a channel having 6 fathoms water between them and the Sunker. These rocks lie SW. by W. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles from Lance point.

The Sunker, a rock nearly awash at low water, lies S. $\frac{1}{4}$ W. 800 yards from Bull islet, close off Bull island point.

Cape St. Mary.—The coast from Lance point trends WNW. for $5\frac{1}{2}$ miles to cape St. Mary, forming between three bays exposed to the sea. At a little distance the cape has the appearance of high table land of uniform height, at the western extremity of which is the light-house.

High barrens of bog and marsh, with the usual stunted growth of spruce, fir, and alder, along the water-courses and sheltered hollows, are prevailing features of the land in this vicinity.

Light.—The light-house on cape St. Mary stands near the edge of a cliff 300 feet high, and exhibits a *revolving* light, showing alternately at intervals of *a minute* a *red* and *white* face. The light is 390 feet above the sea, and in clear weather may be seen from a distance of 26 miles. The tower is white, and rises from the roof of the keeper's dwelling.

The nearest landing place to the light-house is at Brierly cove, about one mile to the northward.

Tides.—It is high water, full and change, at cape St. Mary at 8h. 30m. Springs rise 7 feet and neaps 5 feet.

False cay, with 12 feet water on it, is a rock lying S. $\frac{1}{4}$ W. distant $5\frac{1}{2}$ miles nearly from cape St. Mary light-house.

St. Mary cays are two small rocks, lying from each other W. by N. and E. by S. 120 yards apart, and always showing, being nearly awash at high tide. The water is shoal around, and the sea generally breaks heavily upon them; they bear from cape St. Mary light-house about S. $\frac{3}{4}$ W., distant 7 miles nearly.

Between them and False cay, and also between False cay and the cape, there are from 10 to 19 fathoms water, rock. The 30 fathoms line of soundings is less than a mile from St. Mary cays, so that in foggy weather it is not safe to approach the cape nearer than in a depth of 35 fathoms.

From cape St. Mary to Burin harbor is WNW. $\frac{1}{2}$ W. 40 miles, forming the entrance to Placentia bay.

This bay is about 60 miles deep, containing numerous bays, harbors, and islands.

The coast from cape St. Mary, forming the east side of Placentia bay, trends NNE. for 27 miles to the entrance of Placentia harbor. The land is of nearly uniform height and the shore tolerably straight. The headlands are steep, with coves between, affording shelter to a few scattered fishing stations, fish being generally plentiful. The land, when cultivated, yields good crops of potatoes, oats, and hay.

Fogs.—During SW. winds the fog is generally very dense on the eastern side of Placentia bay, especially about the headland of cape St. Mary.

Dangers.—There are several off-lying rocks, which render an approach to this part of the coast nearer than 40 fathoms water dangerous, except in clear weather.

Perch rock, with 15 feet water on it, lies NW. $\frac{1}{4}$ N. $5\frac{1}{2}$ miles from cape St. Mary light-house. The Bull and Cow, open of cape St. Mary, leads southwest of the rock.

Nest rock, with 9 feet water on it, lies NNE. $\frac{1}{4}$ E. a mile from Perch rock; the sea generally breaks on this rock.

Curslet rock, with 12 feet water on it, lies SW. $\frac{1}{2}$ W. 2 miles from Breme point.

Patrick rock, with 9 feet water on it, lies WNW. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles from the mouth of the river at Patrick cove.

Goose shoal, having $4\frac{3}{4}$ fathoms water on it, lies nearly three-quarters of a mile NW. of Goose cove.

Girdle rock, above water, except at very high tides, lies S. by W. $\frac{1}{4}$ W. a mile from Virgin rocks.

False Girdle, having 6 feet water on it, lies about SE. $\frac{1}{4}$ S. half a mile from Girdle rock.

South rock, with 9 feet water on it, lies S. $\frac{3}{4}$ E. three-quarters of a mile nearly from Girdle rock.

Virgin rocks are three black rocks above water, one of which is 18 feet high; they lie $1\frac{1}{2}$ miles from the shore, and $6\frac{1}{4}$ miles SW. $\frac{1}{4}$ S. nearly from Verde point, at the entrance of Placentia harbor.

Placentia harbor is recognized by the rounded and detached character of the hills in its vicinity, which are higher than the table land of cape St. Mary. It was formerly a place of some importance, but is now only occupied by fishermen, and visited by small craft trading for fish.

The small town stands on the eastern side of an extensive shingle beach. The population of the town and shores of the harbor amount only to 800 persons. There is a fair carriage road from Placentia to St. John's, the capital of Newfoundland.

The inhabitants are all engaged in the fisheries, and have large schooner-rigged boats of 15 tons, in which they frequent the fishing grounds off the headlands of cape St. Mary and cape Pine. Codfish are generally numerous, but, except for the six weeks or two months that caplin are on the coast, the small fish for bait are scarce, and Placentia fishermen have the disadvantage of sending across the bay for squid and other bait.

The harbor is entered by a narrow channel 65 yards wide. Outside and abreast of Castle hill there is a bar of sand and stones having 14 feet water on it; inside of this it deepens to 5 fathoms, and then shoals to 10 feet at low water between the points of entrance, which are low. Within the points the harbor affords well-sheltered anchorage, in 5 and 6 fathoms, mud. The best berth is on the north side, being more out of the whirl and eddy of the tide.

A rapid tide of 4 miles an hour, and the want of good leading marks render it necessary to have the aid of a pilot to enter Placentia harbor. The northeast arm is navigable for 5 miles; the southeast arm is only navigable for boats, and is entered by a narrow channel in front of the town.

Supplies.—Small supplies of mutton can be purchased here, and good water may be had about a mile up the northeast arm.

Dangers.—**Gibraltar rock**, with 5 feet water on it, lies SW. by W. $\frac{3}{4}$ W., $1\frac{1}{4}$ miles from Verde point. To pass north of it, keep Castle hill open of the point, bearing ENE. $\frac{1}{2}$ E. There is a clear channel between this rock and the shore.

Verde point shoal, of rounded stones, extends N. by W. with 3 fathoms water, 600 yards from the shore.

Moll rock, having 6 feet water on it, lies NW. a mile from Moll point, on the north side of the entrance to Placentia. To pass to the southward of Moll rock, keep the north point of Dixon island in line with Privécœur point, bearing about SE. by E. $\frac{1}{2}$ E.

Shoal.—There is shoal ground, with a general depth over it of $3\frac{3}{4}$ fathoms, extending in a northeasterly direction nearly 400 yards from the small 5-fathom bank lying WSW. $\frac{1}{2}$ W., distant 1,100 yards from Privécœur point.

Placentia road, within Verde and Privécœur points, is a mile in length and 1,200 yards wide; it affords indifferent anchorage over a bottom of sand and gravel. The roadstead is open to winds from NNW. to WSW., which send in a heavy sea, and no vessel should remain at this anchorage when the wind veers from southwest to west with a low barometer.

Light.—A light is exhibited from a light-house on Verde point.

The light is *fixed white*, elevated 98 feet above the sea, and should be visible, in clear weather, from a distance of 11 miles. The tower and dwelling attached are constructed of wood, and painted white.

Position: Latitude $47^{\circ} 14' 10''$ N.; longitude $54^{\circ} 0' 20''$ W.

Submarine telegraph cables.—Six submarine telegraph cables are landed at Placentia, four of which are laid along the north side of the roadstead, and two on the southern side.

In order to avoid fouling these cables, vessels should not anchor within a quarter of a mile of the northern side of the roadstead.

Directions.—Approaching Placentia harbor, bring a conspicuous house at the north end of the town, nearly touching Castle hill on the north side, to bear E. $\frac{1}{4}$ S., and run in on this line. Having passed Verde point, a green wedge-shaped sand hill, 70 feet above high water,

detached from the mainland on the south side of the harbor by a salt water pond, haul more to the southward until abreast of Castle hill; then bring a house at the narrows of Northeast arm, in line with the cliffy south shore of the same arm, bearing NE. by E., and this mark will carry the deepest water into the harbor, and when within the points haul up towards the north shore, and anchor as convenient in 5 or 6 fathoms water.

Tides.—It is high water in Placentia harbor, full and change, at 8h 30m.; springs rise 7 feet, neaps 5 feet.

Shalloway point is a low projection faced by a sand cliff, 30 feet above high water, within which are several houses; it is the south extreme of Marquise, the shingle beach that divides Sandy cove from the sea.

Little Placentia harbor is formed by a peninsula, 75 feet above high water, composed of gravel deposit covered with marsh, and faced by sand cliffs 30 to 40 feet high. These slope to a low point at the north, and rise again to Latine point, 38 feet high, surmounted by a flagstaff. This peninsula is 2 miles long, expanding from the narrow neck of Marquise to $1\frac{1}{2}$ miles in width at the northeast end. On the north is a beach of shingle, 5 feet above high water, surrounding a pond, the entrance to which is gradually silting up. There is no passage at low water even for a boat.

Roche point is the extremity of another shingle spit, 9 feet above high water, stretching from the church and forming a basin between it and the pond, sheltered by a bar over which there is 5 feet water. This basin forms a shelter for the fishing fleet of the neighborhood, and is entered by keeping the west shore of Roche point close on board. This point continues below the water about 200 yards to the north. Houses line the shore within the basin, and a Roman Catholic church, with a scaffold belfry near it, shows conspicuously.

Shoal water extends $\frac{1}{2}$ mile from Latine point to a depth of 3 fathoms, and $\frac{3}{4}$ of a mile to a depth of 5 fathoms. White point SE. by E. just open of Isaac point, leads clear in $5\frac{1}{2}$ fathoms.

The Deadman, a rock that just shows at low water and steep-to, lies N. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles from Shalloway point.

Virgin point, the northeast point of Little Placentia peninsula and the turning point into the harbor, has shoal water 200 yards from it, but the next point, marked by a pier and the post-office, a two-storied building, is bold-to.

Cooper cove is south of the next point southwest of this, from which a shoal, with only 3 fathoms on the outer edge, extends S. by W. 800 yards, falling steeply on the south side.

Sandy cove is the name given to the head of the harbor. The north-west shore of the harbor slopes steeply from wooded hills, and may be approached to within 100 yards till abreast of Salmonier, a shallow inlet on the shore opposite Marquise.

Anchorage may be had in Sandy cove in 12 fathoms, mud, and off Cooper cove in the same depth, taking care to clear the shoal off the east point of that cove.

Placentia sound runs in with one bend southeast nearly 3 miles.

Isaac heads, two remarkable conical hills 320 and 427 feet high, define the north side of the entrance and Fox harbor. The shores fall steeply from wooded hills, and are bold, till within $\frac{1}{2}$ mile of the head.

Two shoals incumber the entrance and are the only dangers. The outer, with 3 fathoms water, lies S. $\frac{1}{4}$ E. 1200 yards from Isaac point. The inner occupies a space 400 yards long and 250 yards wide, the shoalest water, 6 feet, near the north end, bearing SE. by S. 1,500 yards from Isaac point.

Fox harbor lies east of Isaac point, by which it is sheltered. **Samson point**, a low hummock 45 feet high under a flat hill 350 feet above high water, is the turning point from Placentia sound. It is a shallow basin with houses on the surrounding shores; there are $2\frac{3}{4}$ fathoms inside, but the entrance is between two shoals and has only 5 feet in it at low water.

Shag rock, 5 feet high, lies off Samson point.

Winds between south and west always draw down Little Placentia harbor, and blow with heavy squalls under Isaac heads. Even when it is comparatively calm outside, boats should always reef with those winds when approaching Isaac point.

Directions.—To enter Little Placentia harbor, keep White point on the north side of Placentia sound SE. by E. just open of Isaac point, until Black head, the south extreme of Little Placentia peninsula SW. $\frac{3}{4}$ S. is open of the east extreme (Lowroon point), when a S. by W. $\frac{1}{4}$ W. course should be steered, taking care to keep Long harbor head N. by E. $\frac{1}{4}$ E. open north of Isaac point, until Shalloway point is just shut in with the bluff on Marquise SW. $\frac{1}{2}$ W. This mark will lead to the anchorages that may be had in Cooper cove when the west house bears north of W. $\frac{3}{4}$ N., or in Sandy cove on the leading mark, as convenient.

To proceed up Placentia sound, round Isaac point at 200 yards distant, and shut in Fox island with that point before the summit on the south side of Little Placentia harbor shuts in with the bluff below. Fox island must be kept completely shut in until Sharp peak over Ship harbor is in line with the first notch in the hills east of the Neck of Isaac, when all danger is passed.

Ship harbor extends NE. $\frac{3}{4}$ E. $4\frac{1}{2}$ miles from Isaac point. There is no danger in it except close to the shore and within 500 yards of the head. A bar, with 7 fathoms least water, lies across the entrance, deepening suddenly on both sides.

Northeast cove, 3 miles from Isaac point, is open to seaward, and affords no shelter.

Conway cove, on the north side of Ship harbor, has good anchorage in 17 to 10 fathoms, and from this cove to the head of the harbor vessels may anchor as convenient.

Two remarkable hills lie on the south side of Ship harbor; Sharp peak, 836 feet high, over the head, and Sugar loaf, 803 feet high, faced by shingle debris, sloping to Northeast cove.

A long range of hills lies between Northeast cove and Placentia sound with many peaked summits; one, more conspicuous than the rest, is like a thumb.

The land between Ship and Long harbors is much contorted, large masses of hills from 600 to 200 feet high rising abruptly from deep valleys in every variety of form. A shoal, with 9 fathoms water and 14 to 16 fathoms close-to, lies NE. $\frac{1}{2}$ N. $1\frac{3}{8}$ miles from Isaac point.

Fox island, 250 feet high, N. by E. $\frac{1}{4}$ E. $2\frac{1}{2}$ miles from Latine point, is a long, flat island covered with dark trees over red rock, the south part being bare from the summit. Shoal water over a white bottom extends 200 yards from the northeast point.

Moratties are two large shoal banks that extend from Fox island to Ship harbor point, with only a narrow channel at each end. The west patch, with 3 feet least water, lies ESE. $\frac{1}{4}$ E. nearly a mile from the west point of Fox island and is 400 yards long. The east patch 1600 yards long, is separated by a channel 300 yards wide from the west shoal, and 900 yards from the shoal water off Ship harbor point.

The best channel is close to Fox island, keeping Red island harbor (on the west side of Placentia bay) open south of Fox island, until Bald head is well shut in with Ram islands. When Red island harbor opens north of Fox island the shoals will be passed.

Northeast cove, open south of Sparrow point (the west point of Ship harbor) E. $\frac{1}{4}$ N., leads 150 yards south of these shoals.

To pass between Moratties and Ship harbor point in $4\frac{1}{2}$ fathoms, keep a landslip under Broad cove head in line with Isaac point, S. $\frac{3}{4}$ W. or a round hill over Bald head bay, just open north of Long harbor head, N. by E. $\frac{1}{4}$ E. until Red island harbor opens either side of Fox island.

Ship harbor point is a shingle spit, 6 feet above high water, stretching off the slopes of two cliff-faced hills 310 and 260 feet high, that mark the northwest point of Ship harbor.

A bay, 1,300 yards deep, lies between Ship harbor point and Long harbor head, divided into two parts by a projecting steep point, the slope

of a round hill, with numerous boulders at the summit, 500 feet above high water. The south cove is shallow to the line of the points, but the north has anchorage with shelter from off-shore winds in 10 fathoms, taking care to avoid the rocky points off Long harbor head.

Long harbor head is a steep, tree-covered point, sloping from two table-topped hills about 300 and 250 feet high. Shoal ground extends 300 yards from this point.

Long harbor runs in NE. by E. 7 miles from this head. The shores are bold-to, sloping steeply from high wooded hills. Tim Barrett rock, awash at low water, is the only danger off the south shore, 150 yards from the coast and $2\frac{3}{4}$ miles from the entrance.

Crawley island, 191 feet high, is nearly a mile long; it lies off a projection that divides Long harbor into two arms, Long harbor and St. Croix bay. It is flat, with a bare top and wooded slopes, faced by earth cliffs on the south side. The east point is a shingle spit that extends under water a short distance. Off the west side are some low islets, and an islet, 4 feet above high-water mark, lies close to the north shore, but the whole may be approached to within 200 yards.

Civil east cove.—The channel between Crawley island and the main is shallow at the west end, so that boats only can pass at low water; but just inside the east entrance good anchorage for small vessels may be had in $4\frac{3}{4}$ fathoms, mud, or just outside in 10 fathoms for large vessels.

Long harbor runs in south of Crawley island, and is further subdivided by a point $1\frac{1}{2}$ miles above Crawley island which forms Rattling brook cove on the south, with a large brook running into it from a lake, and from which water may be obtained at any time. The other arm is shallow from that point, and only boats can cross the bar lying half a mile east of it.

St. Croix bay extends 2 miles north of Crawley island. There are no dangers in it except close to the shore, and it affords good anchorage in 11 fathoms from three-quarters of a mile to within 400 yards of the head. Over the north shore is Tom Power lookout, a remarkable conical hill 562 feet high. St. Croix point, the north extreme of that bay, slopes gradually from Tom Power lookout, terminating in an islet about 40 feet high and a rock that covers 2 feet.

A shoal, with 12 feet water, lies 200 yards off the point, and a rocky patch, with $3\frac{1}{2}$ fathoms, S. by W. $\frac{3}{4}$ W. 700 yards from the point, and NW. $\frac{3}{4}$ of a mile from the west extreme of Shag rocks.

Shag rocks are two islets at the entrance to Long harbor. The west, a flat grass-covered ridge 39 feet high, faced by dark cliffs, with a gap through it near the middle. A reef, awash at high water, extends

off the south end. The east islet, 60 feet high, is tree-covered, and has a double top.

A rock, with 1 foot water, lies 140 yards from the west extreme, and a rock, with 6 feet water, NE. by E. $\frac{1}{4}$ E. 450 yards from these islets.

A shoal, with $3\frac{1}{4}$ fathoms, lies NNE. 800 yards from them, and a bank, with $8\frac{1}{2}$ fathoms water, lies SE. by E. $\frac{3}{4}$ E. three-quarters of a mile from Shag rocks and 400 yards off the south shore.

Fish rock, 10 feet above high water, is an isolated black islet NNW. $\frac{3}{4}$ W. $1\frac{2}{3}$ miles from the west point of Fox island.

A rock, with 10 feet water on it, lies ESE. $\frac{1}{2}$ E. 200 yards from this islet.

Ram islands are a cluster of islands and rocks occupying a space $2\frac{3}{4}$ miles long N. by E. and S. by W. and a mile wide nearly, lying N. by E. $\frac{3}{4}$ E. 2 miles from Fox islands. They are divided into two groups, the south known as the Upper and north as the Lower Rams.

The Upper Rams are four in number, namely, Merchant, Burke, Hole-in-the-wall, and King islands.

Merchant island, the southernmost, is conical, 310 feet above high water, and has a large patch of white moss at the summit that makes it conspicuous from the southward. Off the west end is an islet, low and steep-to. Off the northwest point is a small island 14 feet above high water, joined by shoal water to Merchant island, and a rock, with 5 feet water on it, lies in the channel between this and Burke islands, about 100 yards from the east point of Merchant island.

The channel between Merchant and Burke islands is 400 yards wide, and is clear in the middle, but in addition to the rock mentioned above is a shoal, with 6 feet water, 100 yards from the west extreme of Burke island.

Burke island is composed of a group of conical hills, sloping steeply to the sea, and to a valley in the center of the island. The two highest are over the south shore, 303 and 285 feet above high water. Little Burke island lies off the east end; it has a square top, 42 feet above high water, and a spur rock extending west from it. There are only $3\frac{1}{2}$ fathoms in the narrow channel between Burke and Little Burke islands.

King island is half a mile long, and narrow, consisting of several hummocks joined by shingle beaches. It is off the north end of Merchant island, separated by a channel nearly 200 yards wide, with only 3 feet in it at low water.

Hole-in-the-wall island, so called from a hole in the cliffs on the east side, consists of two portions, the north of bare rock almost joined to the south, a double mound 130 feet high, with a low neck between.

The channel between the two latter islands is 150 yards wide, and has $4\frac{1}{2}$ fathoms water in it.

Dangers.—West of these islands is a cluster of rocks and shoals extending northwest $1\frac{1}{2}$ miles, within which no vessel should attempt to pass.

Rowland rock is the outer of the group, awash at high water and steep to all round. It bears NW. by W. $1\frac{1}{7}$ miles from the west point of Hole-in-the-wall island, and SW. $\frac{1}{2}$ W. a little more than 2 miles from the north island of the Ram group. Shoal ground with uneven bottom runs S. by E. $\frac{1}{2}$ E. from Rowland rock, terminating at $\frac{3}{4}$ of a mile distant in a rocky patch with 16 feet water. This shoal ground is steep to on the east and west sides.

Red island shoal, with 4 feet water on it, an isolated and most dangerous ledge, lies in the fairway of Placentia bay and breaks only in bad weather. It bears WSW. $\frac{1}{4}$ W. $1\frac{1}{2}$ miles nearly from Rowland rock, and NW. $\frac{1}{4}$ W. 2 miles from Fish rock. There is deep water at 100 yards all round.

Fish rock, SE. $\frac{3}{4}$ E. well open east of Fox island, leads south, and Tom Power lookout ENE. $\frac{1}{2}$ E. shut in with the Lower Rams, leads north of this shoal.

The Lower Rams consist of a group of low islets and rocks, the highest about 60 feet above high water, which should not be approached nearer than a quarter of a mile. Harbor island, the largest, near the south end is conspicuous from the houses built on the several flat summits it contains. It is so called from an inlet, which nearly dries at low water, on the north side, where fishing craft find shelter.

Between these islands and the mainland are several banks with $7\frac{1}{2}$ and 8 fathoms, but there are no dangers except the following:

A shoal, with $4\frac{1}{2}$ fathoms water, E. nearly a mile from East Green island, the eastern of the Lower Rams, and the same distance NW. $\frac{1}{2}$ W. from St. Croix point.

The coast north of St. Croix point consists of two deep bays.

Cove-nan-drioch-clochan, or cove of the three stones, runs in nearly a mile from St. Croix point. A plateau, with a depth of $7\frac{1}{2}$ fathoms, lies across it, and the coast is clear beyond 200 yards from the shore. The coves at the head are shallow.

Bald head bay lies north of Cove-nan-drioch-clochan and is clear within 200 yards of the head. The shores may be approached to within 100 yards. The dividing point between these bays is foul 200 yards off.

Bald head is a conical mound 120 feet above high water, the extreme of the north shore of the bay, and the termination of a long mossy slope at the inshore end of which is a curious pinnacle. Off the north extreme is a small island, separated by a narrow channel from the main. The whole of this head is steep to.

Moany cove, northeast of this head, is 400 yards deep, with a shingle beach at the head. Small vessels may anchor with off-shore winds, and will find good holding ground near the west shore in 6 fathoms, sand.

Brine islands, a cluster of islets and rocks almost innumerable, are separated from Bald head by a channel a quarter of a mile wide, free from danger. Woody island, the highest, has a series of conical grass-covered mounds, the highest 115 feet, at the base of which are some rocks close to the shore. The only easy passage through these islands is between Woody island and the next island north, and should be taken in mid-channel.

Dick Burn rock, with $4\frac{1}{2}$ fathoms water, lies SW. by W. $\frac{1}{4}$ W. 400 yards from Woody island.

Hog rock, S. by E. $\frac{1}{4}$ E. 400 yards from Brine islands, covers 5 feet, and is the only danger in the fairway, the other rocks being above water.

Famish-gut island, in line with the northwest extreme of Bald head N. $\frac{1}{4}$ E., leads 200 yards east, and the south end of North Green island, touching the north extreme of East Green island, leads 250 yards south of this rock.

Blue Shag island, 33 feet high, is the most northern of Brine islands. It is so called from the peculiar bluish-gray color of the rock, and is unlike any other on the coast in that respect.

Isaac rock, with 4 fathoms water, NNW. $\frac{1}{4}$ W. 1,200 yards from Blue Shag island, is the only danger north of Brine islands. There are several fishing banks north and west of this, but none are dangerous.

Hammer rocks, NE. $\frac{3}{4}$ N. 700 yards from Blue Shag island, are a group, the outer of which just covers at high water. They are steep-to on the north and east sides.

The coast from Moany cove to Famish-gut consists of a series of coves and heads with few prominent features. Corbin head, a wedge-shaped hummock 70 feet high, lies N. by E. $\frac{3}{4}$ E. a little more than a mile from Bald head. South of it is a small cove.

Corbin head shoal, with 16 feet water, lies W. $\frac{1}{4}$ N. 700 yards from Corbin head.

Trinny cove head, NNE. 1 mile from Corbin head, is separated from the main ranges by a deep valley, drained by a considerable stream that empties into Trinny cove, south of the head, through a sandy beach with an islet off it. There is enough water for boats to enter at high tide, and shelter is sometimes sought there while wooding or from stress of weather.

Hiram rock, 4 feet above high water, lies off this head.

Red cove head, a mile from Trinny cove head, forms the south side of Red cove, and the entrance to Famish-gut. A rock, with 10 feet water, lies 100 yards off the west point of the cove.

Famish-gut runs in N. by E. $\frac{1}{4}$ E. $1\frac{1}{2}$ miles from Red cove head. Off the east shore is Bungle island, a black rock 7 feet above high water, 600 yards from Red cove head.

Bungle island rock, with 1 foot water, lies SW. $\frac{3}{4}$ S. 400 yards from Bungle island.

A rock, that covers 5 feet, lies NW. by W. $\frac{3}{4}$ W. 200 yards from Bungle island. Trinny cove head, S. $\frac{1}{2}$ W. open north of Hiram rock, just clears this rock.

A rock, with 3 feet water, lies 200 yards off the north shore, and $\frac{1}{2}$ mile from the black islet off the north head. Trinny cove Grassy island, kept open of this black islet, just clears south of this rock, the only danger in the anchorage space.

At the head is a pond into which boats pass at high water and find shelter from on-shore winds. The north entrance point is foul for 150 yards.

Famish-gut island, about 50 feet high, lies 300 yards off the north head. A shoal, with 12 feet water on it, lies WNW. $\frac{1}{4}$ W. 870 yards from the west point of Famish-gut island.

Anchorage may be had with good shelter from winds between S. by W. and W. off a deep cove on the south shore in 8 fathoms, mud, and in summer under any circumstances.

Water may be procured from the stream draining a large lake that falls into this cove.

Stone island, 30 feet high, is an isolated white rock 200 yards square, lying N. $\frac{1}{4}$ E. $1\frac{1}{2}$ miles from Brine islands. It is surrounded by sunken rocks that form a nearly continuous chain to Trinny cove islands. The only passage through is three-quarters of a mile south of this island, nearer than which it should not be approached.

Black rock, isolated and 10 feet high, lies half-way between Stone island and the shore.

Trinny cove islands lie N. by E. of Stone island. The rocks and shoals are almost innumerable, and there is no passage among them. The most conspicuous are Grassy island, the northernmost, flat and covered with grass; Woody island, the highest, dome shaped, with a tuft of trees at the summit; Red rock, a conical islet of a reddish color; and Whale's back, the nearest inshore.

The bank on which these shoals lie falls suddenly on the west side, the depth increasing from 30 to 60 fathoms in a quarter of a mile.

Directions.—To keep outside or west of all shoals. Fox island, open west of Ram islands, leads clear. In foggy weather, a vessel should not stand in to a depth of less than 60 fathoms.

To pass eastward of all; keep the mainland shore from Bald head on board, having Ram islands open west of Bald head. After the cove next north of Moany cove is passed, the shore may be approached to within 200 yards, keeping Red cove head open east of Black rock to avoid Corbin head shoal. After passing Black rock, it must be brought in line with the extreme of Bald head S. by W. $\frac{1}{4}$ W., and this will lead to the entrance of Famish-gut, which may be entered in mid-channel, taking care to clear the rock off Bungle island.

The passage south of Stone island through this chain of rocks and islands should not be taken except in emergency, when Corbin head must be brought to bear E. by N. to pass between Hammer rocks and Corbin head shoal. If bound to the southward, when St. Croix point is shut in with Bald head, the latter may be steered for. If bound to the northward, Corbin head must be kept E. by N. until Red cove head is in line with Black rock, when proceed as before directed.

The coast trends N. by E. from Famish-gut point, with deep coves and wooded hummocks 310 to 395 feet above high water, backed by the conspicuous serrated ranges Kite and Doe hills.

The Ticks, $1\frac{1}{10}$ miles from Famish-gut point, are a cluster of rocky islets sheltering a space large enough for a few fishing boats, which enter between the two northern rocks.

Burnt head, 2 miles from Famish-gut point, is a flat-topped, isolated range, with a peak at each end 180 feet above high water.

Burnt head sunker, lies 300 yards from Burnt head point, covers 4 feet at high water, and is bold-to on the west side. A shoal, with 12 feet water, is situated N. $\frac{3}{4}$ E. 300 yards from it.

Shag roost, 66 feet high, is a conspicuous conical islet $\frac{3}{4}$ of a mile from Burnt head. Though small, the white color shows plainly against the land. There is no passage between it and the shore except for small vessels.

Winging rock, 3 feet above high water, is situated W. by S. a quarter of a mile from Shag roost, and is steep-to on the west side.

A group of rocks that cover, and shoals extends $1\frac{1}{4}$ mile, west of Winging rock, and there is no passage among them, but vessels must keep outside all, or in fine weather inside them. To pass east of these dangers Famish-gut island should be made, whence a course. N $\frac{1}{4}$ E. $2\frac{3}{4}$ miles will lead to Winging rock, passing 200 yards west of Burnt head sunker.

Tom Sheaves rock, with 3 fathoms water, is the southwestern of these dangers, and lies NNW. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles from Famish-gut island.

Big sunker, that covers one foot at high water, is the western, situated N. by W. $\frac{1}{4}$ W. 2 miles from Famish-gut island. A shoal with 7 feet water lies NW. $\frac{1}{4}$ W. a quarter of a mile from Big sunker, and sunken rock extended from the latter S. by W. 600 yards.

Northwest rock covers 4 feet at high water, and is the northwest extreme of a line of shoals surrounding Big sunker; it lies N. $\frac{3}{4}$ E. $\frac{3}{4}$ of a mile from Big sunker.

Middle rock, the northeast of these shoals E. $\frac{1}{2}$ S. 550 yards from Northwest rock, covers 2 feet at high water, and is steep-to on the north side.

Little Pinch-gut, $1\frac{1}{2}$ miles from Shag roost, affords good shelter for small craft. It is fronted by Tinker island, 41 feet high, and Green island, 30 feet high, both barren rocks, the former nearly joined at low water to the north point, and the latter facing the middle of the bay.

A narrow passage between shoals leads to the anchorage, and only one course can be pursued in safety.

Keep close to the southwest point of Tinker island to avoid a rock, with 4 feet water 200 yards off. Then steer to pass 100 yards north of the east extreme of the rocks off Green island, and when Burnt head summit opens south of Green island, that mark kept on will lead to a weel-sheltered anchorage in $6\frac{1}{2}$ to 4 fathoms, gravel, fair holding ground.

Great Pinch-gut, a bay encumbered with shoals and affording no shelter, lies northwest of Little Pinch-gut.

Pinch-gut point, northwest of the bay, is a small islet 37 feet above high water, joined to a long, narrow, sloping point.

A rock, awash at high water, lies close to the north side, and a shoal extends SSW. 600 yards, the outer knob having 5 fathoms water.

The coast north of this point is rugged and shoal, with rocks off all the points, and should not be approached within 400 yards.

Little harbor island, 43 feet above high water, has two summits, but makes as a flat top. It is situated NW. $\frac{1}{4}$ N. $1\frac{1}{10}$ miles from Pinch-gut point, and is continued west by low rocks for a quarter of a mile, the western being awash at high water.

Allen shoal, with 10 feet water on it, lies SW. 1200 yards from Little harbor island, and is steep-to on all sides but south.

Big sunker, a rocky patch with three heads, shoalest with one foot water on it, occupies a space 300 yards in diameter NW. $\frac{3}{4}$ W. 800 yards from Little harbor island. Between this shoal and Brennan point on the mainland are two shoals, with 4 fathoms water, at nearly equal distances from each other and the shores.

Large vessels should not take the passage between Little harbor island and the main.

Brennan point, $1\frac{1}{2}$ miles nearly from Pinch-gut point, is formed by a group of low rocks off the turning point of land under the high range over Great Pinch-gut, the summit of which, 675 feet high, makes as a square hummock from the southward, while the coast range is flat. The northern rock is 4 feet above high water, and may be approached to within 200 yards.

Little harbor, fit for small craft only, is situated $1\frac{1}{2}$ miles northeast of Brennan point. Only 12 feet can be carried in at low water, and mid-channel must be kept throughout to avoid rocks on either hand. On the south side a rock that covers 5 feet, lies 60 yards off-shore, and a shoal, with 4 feet water, off a rock that covers, at the same distance off the north shore, leaving between a passage only 50 yards wide.

Anchorage may be had between the first fishing stages or immediately after they are passed, for the water shoals suddenly at the inner stages.

Salls island, 29 feet high, is 1200 yards to the northward of Little harbor, close to the mainland. An islet, 8 feet above high water with a rocky spit west of it, lies close west of Salls island.

Sly-boots, a rock with 5 feet water, is situated SW. by W. $\frac{1}{4}$ W. 1050 yards from Salls island.

The summit of Butler head, open west of Woody island N. $\frac{1}{2}$ W. clears west, and Island cove head shut in with Little harbor head N. $\frac{1}{4}$ E., clears east of this rock.

Little harbor head, 750 yards from Salls island, is a sloping point, from a round wooded hillock 125 feet high, and is bold-to all round.

Island cove head, 1300 yards north of Little harbor head, is a perpendicular cliff 75 feet high, backed by a wooded hummock that shows conspicuously from the southward.

La manche, three-quarters of a mile deep and half a mile broad, runs in northeast of Island cove head. The land in the neighborhood consists of high barren ranges, the culminating point over the head of La Manche surmounted by a cairn 615 feet above high water. On the peninsula forming the northwest shore the hills are 230 feet high in the background, gradually decreasing in height, in a series of hummocks to the point. Numerous valleys intersect these hills, down many of which streamlets run from ponds situated between the hills.

Lead mines are situated on the east shore of the bay, and the buildings show out prominently from the westward. A wharf has been erected in a small cove below the mines where small vessels can load, but affords no shelter from on-shore winds.

Anchorage may be obtained in 6 or 7 fathoms, gravel, fair holding ground, with shelter from winds from NW. by north and east to S.

La Manche head is a wooded head, forming the north point of the entrance. Some low rocks lie off it, steep-to on the west side, and about 200 yards from the shore.

A rock, that covers 5 feet, lies 100 yards off the north shore, a quarter of a mile east of La Manche head.

Woody island, 92 feet high, is the south extreme of a group of islands and rocks off the peninsula, north of La Manche, that divides it from Little Southern harbor. Between this group and the main are numerous sunken rocks and shoals, completely shutting the passage. The south and west sides of the group may be approached to within 200 yards.

Grassy island, 65 feet high, forms the north extreme, and is faced by black cliffs. A rock, with 3 feet water, lies N. by E. $\frac{1}{4}$ E. 100 yards from Grassy island.

Winging rocks, lying NNW. $\frac{3}{4}$ W. 800 yards from Grassy island, are two barren rocks, the southern 30 feet high and the northern 5 feet above high water. Sunken rocks lie between them and a shoal, with 7 feet, 100 yards off the northeast end. The south rock is bold to the southward.

Little Southern harbor is situated N. by E. of Grassy Island. The best passage is between Grassy island and Winging rocks. On the south side of the entrance are several low wedge-shaped hummocks, joined by two low necks to the main. From the highest of these, rocks that cover extend 200 yards. The north point slopes from Butler head, a round wooded summit faced on the north side by steep cliffs, and 201 feet above high water.

A rock that breaks lies 150 yards off the north point, leaving a passage 400 yards wide between it and the rocks off the south shore. Both sides of the harbor have detached rocks off them, but may be approached to within 200 yards, and the head shoals 300 yards from the high-water line.

Anchorage may be obtained anywhere within the line of the points, but the best holding ground is in 7 fathoms, gravel, just beyond a deep cove on the north shore.

Tides.—It is high water, full and change, in Little Southern harbor at 9h. 30m. Springs rise 8 feet.

Great Southern harbor is entered north of Butler head, and is separated from the head of Little Southern harbor by an isthmus 200 yards broad, nearly covered by a pond. The harbor runs $3\frac{1}{4}$ miles from Butler head, and contains some islands; the shores are steep-to, sloping from wooded ranges, and at the head is Big pond, faced by a shingle beach, with a narrow channel into it passable by boats.

Anchorage may be had at the head in 9 to 5 fathoms, but the holding ground is bad, and the harbor is completely exposed. The best place is in 5½ fathoms, south of Tommy Sharp rock, an islet 6 feet high, joined to the peninsula on the north side of the harbor, that separates it from Arnold cove.

Duck island, 56 feet high, lies N. ¾ W., half a mile from Butler head, and the same distance off the nearest cliff. It is bold-to, except off the southwest point, where a ledge with 7 to 9 fathoms extends nearly half a mile.

Seal islet, 43 feet high, is a small square rock close to the isthmus dividing Great and Little Southern harbors.

A rock, that covers 6 feet, with another sunken rock close-to, lies S. ¾ W., 400 yards from Seal islet, in the passage between Duck island and the main, 400 yards from the latter. Duck island, therefore, should be neared when taking this channel.

Goose island, 81 feet high, is a square grass-topped rock, faced by black cliffs, separated by a channel about 200 yards wide from the peninsula dividing Great Southern harbor from Arnold cove. In the channel between 3¾ fathoms water may be carried. From the west extreme a ledge extends about 1,200 yards, with depths of 9½ to 6½ fathoms.

Arnold cove contains good anchorage in 5 to 3½ fathoms for small vessels, sheltered from all winds, and for large vessels in 7 to 5 fathoms, with shelter from all but those from south to west. The southeast shore is rugged, sloping from a wooded cone 130 feet high. At the head is a shingle beach fronting a salt-water pond, and the northwest shore, terminating in Bordeaux island, is fringed by rocks that cover and extend 200 yards from the shore.

Round rock, 6 feet above high water, is the farthest off shore, and is situated E. ¼ S. 400 yards from Adams head.

Adams head, 104 feet high, is a flat-topped barren mound near the south extreme of the western shore of Arnold cove, with Adams house, a conspicuous two-storied dwelling, at the base, that shows out well to all parts of the head of Placentia bay.

Bordeaux island, 138 feet high, wooded and bluff, is separated from the main by Bordeaux gut, a narrow passage, with water enough for fishing boats at low water. A remarkable quartz vein runs down the cliffs near the southwest point of the island. The island is conspicuous from down the bay, and may be approached to within 100 yards on the north and west sides.

A rock, that covers one foot, lies between the east extreme of Bordeaux island and Adams head, a third of the distance across from the latter.

The coast from Bordeaux gut runs N. by E., with cliffy rugged shores, to Come-by-chance, and should not be approached nearer than 200 yards.

Come-by-Chance bay is entered between Fox head, $2\frac{1}{2}$ miles from Bordeaux island, on the east, and Come-by-Chance point on the west side is $1\frac{5}{8}$ miles wide at the entrance, diminishing gradually to the head, and nearly 3 miles deep to the mouth of the river at the head.

Rocks, that cover, lie 200 yards off the shore just north of Fox head, and a rock, that covers 5 feet, lies 400 yards off a shingle beach three-quarters of a mile north of Fox head. The west shore may be approached to within 200 yards, but the head shoals three-quarters of a mile from the house. Fishing craft can enter the river at high tide and slack water and lie dry inside the house. A shallow stream runs between banks dry at low water $1\frac{3}{4}$ miles to a fresh-water brook, flowing from a series of ponds extending some miles to the northeast. The isthmus of Avalon is only $1\frac{1}{4}$ miles across from this stream to the head of Bull arm in Trinity bay.

Anchorage may be had as convenient in this bay in depths of 16 fathoms and less, the former depth being found at a mile within the entrance to the bay.

Powder horn, a conspicuous round hummock 1,045 feet above high water, on a flat range, is situated $2\frac{1}{2}$ miles from the head of Come-by-Chance. At the west extreme of the range are two smaller peaks, falling steeply to low marshy ground that extends to the coast ranges of Come-by-Chance. Powder horn is conspicuous from all parts of Placentia bay, and Center hill or Saunders look-out from the northern portion.

Jonathan lookout is a conspicuous isolated cone, 712 feet above high water, and situated W. $\frac{3}{4}$ N., distant $1\frac{3}{4}$ miles from Powder horn. From this hill the range gradually decreases in height to the marsh bordering on North harbor.

Coast.—Rocks extend a short distance from Come-by-chance point. The coast then trends NW. round Hollett cove, which is 600 yards wide and 400 yards deep, with several sunken rocks near the shore. A reef that dries at low water, with sunken rocks at the extreme, extends 250 yards south from the west entrance point of this cove.

Southern head, a wooded promontory 125 feet high, projects a short distance from the line of the coast, at three-quarters of a mile north-westward of Come-by-chance point. The shore from this to North harbor slopes from wooded hills, faced by small cliffs, and is fringed by small islets and rocks. Several of the latter cover at high water, and off them lie sunken rocks, that render it necessary not to approach this part of the coast nearer than 300 yards.

North harbor lies NW. $\frac{1}{2}$ W., distant $1\frac{3}{4}$ miles from Come-by-chance point. It is $4\frac{1}{2}$ miles deep, and 1,800 yards wide at the mouth. At 2 miles within the entrance the breadth decreases to half a mile, and continues that breadth to the low-water line at the head. The depth of water is 31 fathoms in the middle of the entrance, decreasing gradually to 14 fathoms at 2 miles inside, and then suddenly to 5 fathoms off Molasses point, north of Goose cove; thence gradually to $3\frac{1}{2}$ fathoms, that depth being found at 300 yards from the sand and boulders which dry at low water across the head.

The east shore slopes from hills covered with moss, and wooded at the sides, to a marsh just within the coast line, while the west shore falls more steeply from higher coast ranges, and is more thickly wooded.

Rocks that almost cover at high water lie close to the east shore, 800 yards northward of South point.

Emberley point, 700 yards farther to the northward, may be easily distinguished by a white house, with a garden in front, standing a few yards from the shore.

A cove lies to the eastward of Emberley point, surrounded by rocks, that extend 200 yards from the beach of shingle which fringes it. A plateau of sand, with a general depth of $5\frac{1}{2}$ fathoms, extends a third of a mile from the edge of the rocks, and affords good anchorage with all winds, except those from S. by W. to SW. by W.

Sall-the-maid island is situated 2 miles within the entrance, and off the west entrance point of this cove, to which it is nearly joined by rocks. It is 70 feet high, and composed of gray rocks covered by wood. From it sunken rocks extend S. by W. for a distance of 300 yards. Northward of this island shoal water extends 200 yards from the shore; and several rocks, some of which cover, lie within that distance. Charley rock, the highest of these, is 9 feet above high water, and lies nearly midway between the island and the head of the harbor.

The west shore of north harbor may be approached to 100 yards, except in the coves.

Jigging cove lies on the west shore nearly 2 miles from the entrance, and is shallow to the mouth.

Goose island, about 40 feet high, wooded and flat, forms the east entrance point, and separates it from Goose cove, also shallow to the line of the outer points. A rock lies a short distance from the south extreme of Goose island.

Anchorage for large vessels may be had anywhere within the entrance of North harbor according to the depth desired, but it must be borne in mind that the water shoals rapidly from 10 to 5 fathoms off Molasses point, east of Goose cove.

North harbor point, the west entrance point of North harbor, terminates on the eastern side in a small, nearly detached, rocky peninsula, 31 feet high, off the south extreme of which lies a sunken rock.

North harbor rock, with 6 fathoms water on it, lies SW. by W., distant 600 yards from North harbor point.

Baker cove lies NW. by N. of North harbor point. It is 1,400 yards wide and 1,000 yards deep, and affords anchorage with off-shore winds in $4\frac{1}{2}$ to 9 fathoms, sand. Rocks that cover extend a short distance from the east entrance point of the cove; and shoal water extends a short distance from the shore and 100 yards from Baker point, which is a wooded bluff about 120 feet high, projecting 600 yards from the coast northwest of the cove.

At the head of Baker cove are two beaches of reddish shingle, separated by a red cliff, facing a small wooded hillock.

Coast.—The coast from Baker cove trend northwest for $1\frac{1}{2}$ miles to Placentia-man point, with slight indentations, thence with a slight change in direction, more to the north, for 2 miles, to a low wooded promontory faced by shale cliffs, from the foot of which the shore dries a short distance. A few houses are built on the coast between Baker cove and Placentia-man point.

Black river, from which the station derives its name, is entered at half a mile northward of the point on which the station stands, and may be approached to 200 yards by vessels drawing 12 feet water.

Anchorage may be had at the head of Placentia bay, north of Placentia-man point, but large vessels should not bring Bloody point, the north extreme of Sound island, to bear south of west, as the water shoals rapidly from 14 to $3\frac{3}{4}$ fathoms.

A telegraph station, surrounded by well cultivated ground, is situated on the south entrance point of Black river; it is in connection with the Anglo-American Telegraph Company.

Vicuna island, 30 feet high, lies WSW. $\frac{1}{4}$ W., distant 600 yards from the station point; it is about 200 yards in diameter, and covered with grass over gray rock. Martin Morrissey rocks, a small group nearly 200 yards in diameter, are nearly joined to the west extreme of Vicuna island, the highest being 6 feet above high water.

A rock 4 feet high is situated 200 yards south of Martin Morrissey rocks, and 100 yards farther in the same direction lies a rock that dries 4 feet at low water.

A rock that dries 6 feet lies W. $\frac{3}{4}$ S., distant a quarter of a mile from Vicuna island, and a rock, with 3 feet water, lies between that island and the station point, 200 yards from the latter.

Mouse island is small, covered with grass, and 26 feet high; it is situated NW. by W. $\frac{1}{4}$ W., distant half a mile from Vicuna island.

Cannon hill, a conspicuous red hill, 675 feet high, lies on the north side of the bay, at the head of which Black river discharges. It consists of two parts, on the summit of one of which is a perched rock that bears a resemblance to a large gun, and can be seen against the sky when bearing about NW. by N.

Pipers hole is entered through a channel 400 yards wide, lying W. $\frac{3}{4}$ N., distant 400 yards from Mouse island, and extends in a northwesterly direction 4 miles to the fresh-water brook at the head. The north shore slopes generally from high wooded hills, 750 to 950 feet high, over gray rock, while the hills on the south side, 450 to 750 feet high, are barren at the summits, and covered with boulders, though densely wooded on the sides. Between the foot of these hills and the water is situated a flat tract of land, apparently the bed of the river at some former time, which is partly under cultivation.

Birchy island, flat, wooded, and of about the same height as this land, is situated close to the south shore, at 1,000 yards within the entrance.

At 2 miles within the entrance is a sharp bend, 150 yards wide, round cape Pine, through which the tide runs about 3 knots an hour at springs. The arm then expands into a shallow basin, a mile long and 1,200 yards wide, the greater part of which dries at low water. In it are some islands, Birchy island, the highest, being 62 feet high and covered with wood. From the upper part of this basin a narrow stream extends to the head, the northern bend being nearly filled with boulders.

Southwest of the entrance to Pipers hole are situated Rocky cove, a small curve in the coast lined with boulders, and Cock and Hen cove, so named from the local name for cockles, which are dug for bait in large quantities on the sand that dries a hundred yards at low water. Shoal water extends a considerable distance off this cove.

Desolate point is the extreme of an isolated hill, 200 feet high, covered with moss, that forms the turning point into the sound from Pipers hole. Bittern cove, a slight indentation with a shingle beach, lies S. by W. of this hill. From this the coast trends in nearly a straight line S. by W. for a distance of 6 miles, the northern part sloping from high hills, and the coast line of rocks being occasionally varied by small beaches of shingle.

Toby lookout is the highest of the hills immediately bordering on the coast, and attains an elevation of 1,026 feet. This range recedes from the coast in a westerly direction, and becomes barren in the interior.

Sugarloaf island is about 250 yards in diameter, round, wooded, and 101 feet high. It is situated half a mile from the southwest extreme of Woody island and should not be approached nearer than 200 yards.

La Plante sunken, awash at low water, lies at the extreme of a bank which extends SSW. $\frac{1}{2}$ W. for a distance of 650 yards from Sugarloaf island. Shag rock, open either side of that island, leads north and south of this danger.

La Plante is a shallow indentation on the mainland, a mile southwestward of Sugarloaf island. This cove nearly dries at low water, but boats can enter and obtain water after half flood. An islet 27 feet high and covered with grass is situated close off the north entrance point.

Barren island, lying $1\frac{1}{2}$ miles southwestward of Woody island, is separated from the mainland by a channel 700 yards wide. It is nearly 4 miles long and $1\frac{1}{2}$ miles broad at the northeast extreme. It is in the shape of an irregular triangle, the apex being at the southwest extreme.

Two peninsulas extend from the east side. The northern forms Barren island harbor and the north part of Western cove, being connected to Barren island by a beach of shingle between the heads of these coves. Western cove head, the other peninsula, is joined to the island by a low, marshy neck, on which are two ponds, that leave only a short distance between each other and the sea on each side of the neck. There are three principal hills. The summit, 490 feet above high water, is bare, lies near the middle of the island, and from the southward appears as an inclined plane with the steep side to the westward. A round wooded hill, 427 feet high, is situated close west of Western cove head, and a bare hill, 432 feet high, lies close to the northeast extreme.

The north shore falls steeply from a chain of wooded hills, and is clear of danger beyond 200 yards. The northwest extreme is a low, grassy plateau, from which a bar with 5 fathoms water extends to the mainland. Two small shallow inlets are situated, respectively, $1\frac{1}{2}$ miles from the south extremity, and a mile from the north end; both of these are on the western side. The entrances are marked by white cliffs, and fishing craft haul into them for repairs.

The south point of Barren island terminates in a small gray islet, 29 feet high, covered with grass and surmounted by a conspicuous single tree.

Barren island harbor is 900 yards long, 150 yards broad, and affords shelter to small vessels from all but easterly winds. The anchorage is in 6 to 8 fathoms, and the shores are bold-to. A considerable settlement lines the shores, and an old wooden church, with a belfry near, stands on a mound west of the head. On the west side the harbor is faced by reddish landslips. The entrance may be recognized by a shingle beach and some low rocks close to Barren island. The east entrance point of the harbor must be given a wide berth when rounding, and the east side of the peninsula forming it is foul for nearly 200 yards.

Western cove is situated between the two peninsulas and Barren island. Western cove head rises to a sharp peak 223 feet high, is covered with an alternation of wood and grass, and its outer coast is marked by brown landslips. Several round wooded hills lie south of the summit. James point, north of the entrance, is steep-to, but from West point a bank with 10 fathoms extends 400 yards. A shoal, with 3 fathoms water, lies ESE. $\frac{1}{2}$ E. a little more than 200 yards from West point.

The northern part of the cove is half a mile deep, a third of a mile wide at the entrance, and narrows to the beach, which is 250 yards broad at the head. Shoal ground extends 250 yards from the beach, but south of that the depth ranges from 10 to 16 fathoms in the middle of the cove.

The southern part is 750 yards deep, 400 yards wide at the entrance, and terminates in a shingle beach 200 yards wide at the head. **Glindon cove** is a small bight on the shore west of the entrance, with a few houses round it. **Glindon rock**, a small bare rock 3 feet above high water, lies close to the shore, south of Glindon cove.

A few houses are also built round Western cove.

Anchorage may be had in either arm of the cove, according to the direction of the wind, in 12 to 16 fathoms in the northern part, or in 20 fathoms in the southern part.

Duck rocks, a ledge of dark sharp rocks, extend from the southern extreme of Western cove head. The highest is 61 feet and has a hole through it; the outer is a small gray rock 12 feet high and steep-to.

Back cove, close north of Duck rocks, is nearly filled with Back cove islets, a castellated group, reddish in color, the highest of which is 75 feet above high water.

Green island, lying 850 yards southwestward of Barren island, is 55 feet high, and covered with grass over dark gray rock. It is 150 yards in diameter, and has no danger beyond 100 yards from it, except on the west side.

Green island rock, with 8 feet water, is the northwest extreme of a bank extending 300 yards from Green island, and falling suddenly to deep water.

Gulsh is a basin 1,200 yards long and 300 yards broad, situated on the mainland shore west of Barren island, and nearly $3\frac{1}{2}$ miles southward of La Plante. The entrance is only a few yards wide and is filled with large rocks, leaving no passage, even for a boat, at low-water springs.

Ship island, a mile southwest of the south extreme of Barren island, is nearly a mile long, 600 yards broad, and is almost rectangular in shape. The summit, situated near the middle of the west shore, is 248 feet high, round, and covered with wood. Several other hills rise in

the island, some bare and others wooded, joined by green marshes or plains. A few white patches mark the cliffs near the north extreme. The shores are generally bold, with small cliffs. There is only one danger as far as 200 yards from the shore. A rock awash at low water lies 200 yards from the middle of the east side of the island. Burgeo island, seen open of the east part of Ship island and bearing SSW., leads east of this rock.

Shag rock, a quarter of a mile WSW. of the southwest extremity of Ship island, is 12 feet high, 150 yards in extent, and steep-to. A shoal, with $5\frac{1}{2}$ fathoms water on it, lies SSE. $\frac{3}{4}$ E. a little more than 200 yards from Shag rock.

Bell island, situated 800 yards S. by W. of Ship island, is formed of brown cliff, covered with wood. It is wedge-shaped, the apex, 143 feet high, being on the south side. A shingle beach lines the northeast side. The island is so named from a remarkable rock, about 20 feet high, shaped like an inverted bell, situated close to the south extreme, that shows prominently when seen from north and south or when close to the island.

A rock awash at low water, with another rock close north of it, lies about 100 yards from the east shore.

Great Sandy harbor.—The approach to Great Sandy harbor may be readily distinguished by the off-lying islands, and by a wooded hill with a bare top 256 feet above high water, which lies northeast of the entrance. A wooded islet 53 feet high lies close south of the hill, and a bare rock 6 feet above high water is situated south of the islet. The west side of the entrance is formed by a wooded peninsula nearly a mile long and 180 feet high. Near the north extreme is a bluff point with a small bight in it.

The harbor is entered through a channel not quite 200 yards wide, between the base of the hill and the bluff point just described. Immediately within the entrance an arm extends northeast for 450 yards, and is 250 yards broad, with $3\frac{1}{2}$ fathoms in the middle, but only $2\frac{1}{2}$ fathoms in the entrance. Rocks lie close to either shore.

The main harbor trends southwest for 800 yards, with a breadth of 350 yards, then bends sharply to the northwest, in which direction it extends $1\frac{1}{2}$ miles, expanding to 1,300 yards wide for nearly three-quarters of a mile, when the basin contracts to the entrance of a stream 100 yards wide. Nearly the whole of this basin dries at low water, leaving a narrow passage for boats only close to the shore. In the first bend not more than 6 feet can be carried. The hills surrounding the harbor are partially wooded and slope gradually to the southwestern arm.

Civil East cove is a slight curve in the southeast coast of the peninsula, protected by Civil East island, and affording shelter to small fishing craft in $2\frac{1}{2}$ fathoms. A few houses stand on the shore, surrounded by

small patches of cultivation. A rock with 6 feet of water on it lies mid-way between the island and the main.

Civil East island is about 40 feet high, flat, and partly wooded. It is 400 yards long, and a rock awash at low water lies close to the southwest extreme.

Anchorage may be had, with good holding ground, and shelter from all winds but those from SW. by S. to W. by S., on a plateau of sand lying between Civil East cove and the entrance to Great Sandy harbor, in from 6 to $4\frac{1}{2}$ fathoms.

Great Coat island, 45 feet high and 100 yards in diameter, round and wooded, lies 250 yards SSW. $\frac{3}{4}$ W. of the south entrance to Civil East cove. There is a clear passage west of it, but a rock that dries lies a short distance from the southwest extreme.

Little Sandy harbor is entered through a channel 200 yards wide, south of Great Coat island, between the cliffy southwest extreme of the peninsula dividing it from Great Sandy harbor and Stearin rock, a flat, bare islet 5 feet above high water. Within the entrance the harbor expands to a basin 600 yards in diameter, with $5\frac{1}{2}$ fathoms in the middle, decreasing gradually in depth to the shore, except in the southwest corner. From this side a small arm extends to the westward and is shallow to the entrance. Water may be procured from a brook at the head of this arm, but the approach is made difficult at low water by boulders lying off it. A wooded islet about 40 feet high nearly joins Stearin rock to the south side of the entrance. The hills surrounding the harbor are partly wooded and partly covered with white moss, except those extending south from the west side of the harbor, which were burned in 1878. Sandy harbor toll, the highest of these, is 473 feet high and round in outline. A long sandy beach forms the north side of this harbor.

Nan point, lying 1,200 yards SE. by S. of the entrance to Little Sandy harbor, is a small sharp projection, steep-to. The intervening coast consists of two small coves, with shingle beaches, between otherwise rocky shores.

Anchorage for large vessels, with shelter from off-shore winds, may be had off this coast in 6 to 7 fathoms at 400 yards from the shore.

The coast from Nan point trends southwestward for $1\frac{1}{2}$ miles to Castle islet, having the same characteristic features.

Castle islet, a small square rock 13 feet high, lies close to the shore off the north entrance point of Davis cove.

Little Burgeo island lies 250 yards SE. by S. of Castle islet. It is 900 yards long, 600 yards broad, and 227 feet high. It is flat in outline, faced by steep cliffs, and there is a small cove on the south side. There is barely passage for a boat between this island and the main at low water.

A shoal, with 12 feet of water, lies 100 yards from the northeast extreme.

Davis cove is entered south of Call's point, situated 1,000 yards southwest from Castle islet. A rock that dries 4 feet lies 100 yards south of the point. This cove is 600 yards wide and 200 yards deep, and affords good shelter to fishing craft with off-shore winds.

Water may be obtained from a large stream at the head.

Coast.—The coast, which is wooded over brown cliffs, curves generally to the southwestward from Davis cove for a little more than a mile to **Butts hole**, a small cove with a few houses round it, and a rock that dries 6 feet at low water in the middle. A conspicuous waterfall is situated on the south side of this cove.

Parfrey point lies half a mile S. by W. of Butts hole, and is a small projection, 105 feet high, faced by gray cliffs. Parfrey shoal, with $4\frac{1}{2}$ fathoms water on it, lies S. by E. $\frac{1}{2}$ E., distant 267 yards from this point.

Burgeo island, situated 1,200 yards S. by W. of Little Burgeo island, and separated by a clear channel 1,100 yards wide from the mainland, surmounted by remarkable sharp peak 415 feet high, and two smaller peaks to the southward of it, named Hares ears, about 350 feet high, is $1\frac{1}{2}$ miles long and half a mile broad. The highest hills are bare, but the coast ranges and valleys are wooded. The east shore is steep-to, but a rock with 5 feet of water on it lies 100 yards from the south extreme. A cove 400 yards deep is situated on the west shore of the island, just below the summit, off the north entrance point of which is situated a small islet with a sunken rock off it.

Cross rocks, 12 feet above high water, lie nearly 200 yards WNW. $\frac{3}{4}$ W. from the north entrance point of this cove, and are surrounded by sunken rocks. A shoal with 15 feet water on it lies 100 yards S. by W. of these rocks, and a bank, with less than 10 fathoms, extends 250 yards farther in the same direction.

Near the north extremity of Burgeo island the coast curves into a small bay, surrounded by a beach of shingle, between low points of cliff. The wharf, stores, houses, and flag-staff of a small trading establishment are built here, and there is good anchorage off the wharf in 14 fathoms for small vessels. **Vigors island**, with a flat, wooded summit about 120 feet high, falls in steep cliffs on all sides but the north, where a grassy point, fringed by boulders and shoal water, extends 100 yards. Vigors island should not be approached nearer than 200 yards on the north side. The channel between the northeast extreme of this and Burgeo island is not quite 200 yards wide. On the eastern side is a square islet, off which lies a sunken rock.

White islands are a group occupying a space $1\frac{1}{2}$ miles long and nearly half a mile broad, lying 2 miles SE. of Burgeo island, the channel be-

tween deepening to 151 fathoms. There are three large islands, several smaller islands, and many rocks.

Greens island, near the north extreme, is 110 feet high, round, and covered with stunted trees, interspersed with grass over gray rock. Rocks and shoals extend from the south side of the island for 400 yards, the highest being a square islet about 40 feet high, off which are two rocks. A small rock lies close to the north extreme of the island, and a large shoal extends northwest of the chain of rocks south of Greens island.

Gooseberry island, situated 200 yards NW. by N. of Greens island, is about 40 feet high, flat, and covered with grass over reddish-gray rock. Sunken rocks extend 200 yards from the west extreme.

Deepwater bank, with 7 fathoms water, lies N. by E. $\frac{1}{2}$ E., distant 800 yards from Gooseberry island, and Rock of the bank, with the same depth, bears E. $\frac{1}{4}$ S., distant 1,400 yards from Greens island.

Stearin rocks are the cluster next southwest of Greens island. They are nearly connected at low water, and occupy a space 200 yards in diameter.

A reef, with two heads that just dry at low water, bears ESE., distant 250 yards from the highest of these rocks.

Middle Dock islands are situated 200 yards SW. by W. of Stearin rocks, and are 400 yards in diameter. The two southernmost are conical, with grassy summits, the western and highest being 37 feet above high water. These two have no dangers off their southeast sides. The rest of the group are low, and the northern covers at high water, but there are no outlying dangers beyond 200 yards' distance from the group. There is a clear passage between these and Stearin rocks.

Anchor rock, bare, flat, and 8 feet above high water, is separated from the south side of Middle Dock islands by a clear channel 200 yards wide, and is steep-to.

A sunken rock lies midway between it and Northwest island.

Northwest island, 115 feet high, and situated 400 yards SW. by W. of Middle Dock islands, is formed of several wooded hillocks covering dark rock, the highest falling steeply to the northwest extreme. Some small pinnacle rocks lie close-to, but there is no sunken danger near, except on the east side.

West island, lying 450 yards westward of Northwest island, is wedge-shaped, 300 yards long and 200 yards broad. The summit, which is wooded, falls steeply to the north extreme, and is 115 feet above high water. A green mound with a conspicuous patch of turf near the summit is joined to the south extreme by a beach of shingle. A ledge of

rocks extends 200 yards from the east side that dries only at low-water springs.

Western rock, the western of White islands, is a gray islet 24 feet high, with a little grass near the summit. A reef of rocks extends 200 yards north, and there are rocks between it and West island, but no danger beyond 200 yards from them. A rock, awash at high water, lies close south, and a shoal, with 7 feet water on it, is situated a short distance from the southwest extreme. A rock that dries lies NW. by W. $\frac{1}{4}$ W., distant a little more than 200 yards from West island.

Mackerel shoal, with 14 feet water, bears WNW., distant 400 yards nearly from West island.

Harry rock, with 8 fathoms water, lies WSW. $\frac{1}{4}$ W., distant 700 yards from Northwest island.

Big shoal, with 4 fathoms water, bears SSW. $\frac{1}{4}$ W., distant 950 yards from Western rock, and is the highest part of a bank 200 yards in diameter within the depth of 10 fathoms.

Shoal bank, with 14 feet water, lies SW. by W., distant $1\frac{1}{2}$ miles from Western rock, and is a small pinnacle with deep water close-to.

Coast.—The coast from Parfrey point, after a slight curve close west of that point, trends in nearly a straight line to the entrance of Olatise harbor, falling steeply, in many places perpendicularly, from wooded hills near the shore and gray moss-covered hills in the background.

Red point shoal, with $5\frac{1}{2}$ fathoms water, lies SW. $\frac{3}{4}$ S., distant 850 yards from Parfrey point, and 200 yards from the shore.

Skippers brook, a conspicuous waterfall, enters the sea at $1\frac{1}{2}$ miles westward of Parfrey point. Skippers brook rock, with 10 fathoms water, lies E. $\frac{3}{4}$ N., distant a quarter of a mile from the point of the cove into which the brook runs.

Ladder cove, a small bight, lies one mile southward of Skippers brook, and three-quarters of a mile farther south is Coffin cove, 300 yards deep, with a beach of shingle at the head.

Barren point, $1\frac{1}{2}$ miles south of Coffin cove, is covered with moss and surmounted by a small peaked hill 216 feet high. Joss brook falls into the sea, from an elevation of about 30 feet, close north of this point.

Olatise harbor is nearly 800 yards wide in the entrance, between Gunning point on the north side and Olatise harbor head on the south. The harbor expands to 1,600 yards broad, and extends a mile in a southwesterly direction to two arms that continue it to the westward. Culleton head, north of the entrance, is a bare round hill, 452 feet high, falling steeply to the eastward. A few houses are built on the north shore, immediately within the entrance. A large brook runs into a cove on the

north shore half a mile southwest of Gunning point, and a rock that dries is situated close to the east entrance point of that cove.

Northwest arm extends to the southwestward $1\frac{1}{10}$ miles, with a breadth of 400 yards, then turns to the north, forming a cove 400 yards in diameter.

Cross rock, a small pinnacle 9 feet high, lies close to the north side of the entrance to this arm, and is nearly joined at low water to the shore of a small cove with a stream in the east corner, round which are a few houses. This rock has deep water close to the south side.

Northwest head, south of the entrance, is a bold cliff surmounted by a round wooded hill 256 feet high. A reef that dries at low water extends 150 yards east; and a rock that dries 2 feet lies close north of this head.

A rock that covers lies close to the east point of the cove, at the head, and shoal water fringes the north shore of that point. With these exceptions the shores of Northwest arm are steep to.

Anchorage may be had anywhere in the arm with depths from 16 to 18 fathoms, or by small vessels in the cove at the head in 6 to 8 fathoms. The hills on the north shore are 330 to 360 feet high, fall sharply to the sea, and are generally wooded. A hill, covered only with moss, 150 feet high, slopes to the east point of the cove at the head.

Between Northwest and Southwest arms the coast is bold, encircling a cove into which a streamlet runs. Rocks lie close to the head of this cove.

Southwest head is a bold bluff 175 feet high, with a small islet joined to the east side.

Southwest arm is 1,300 yards long and 600 yards wide, between Southwest head and the south shore; but 700 yards within the entrance it is narrowed to 300 yards by Jigging cove head, and continues that breadth to the westward. The northwest shore is fringed with rocks, but the southeast side is free from danger.

Shag rock, 6 feet high, is the highest of a small cluster lying 400 yards from the south shore and 1,800 yards SW. by W. $\frac{1}{4}$ W. of Clatise harbor head. A shoal, with $4\frac{1}{2}$ fathoms water, bears NW. by W. $\frac{3}{4}$ W., distant 200 yards from this rock.

Clatise harbor head is the sharp extreme of a narrow promontory surmounted by a wooded hill 253 feet high. A sunken rock lies close to, and a bank, with less than 10 fathoms on it, extends 200 yards from the extreme of this head.

Coast.—The coast from Clatise harbor head trends S. by W. for a distance of half a mile to White point, so named from the color of a small

islet that forms it. A few white houses stand on the shores of the cove between this point and Olatise harbor head. Collins rock, 2 feet high, lies close to the shore half a mile S. by W. of White point, and Redland, a reddish cliff, south of a beach of shingle through which a stream runs, is situated 1,200 yards S. by W. of Collins rock.

Oliver cove is a beach of shingle 250 yards long, a little more than 2 miles from Olatise harbor head. Shoal water extends 100 yards from the beach, but beyond that anchorage for small vessels may be obtained in 10 fathoms, with shelter from off-shore winds. A road extends from this cove to the head of Presque, nearly a mile distant, near which, about midway, is situated the Roman Catholic church.

Oliver rock, small and 12 feet high, lies close to the bluff south of this cove, down to which Calvary hill slopes from an elevation of 423 feet above high water.

Mahany cove lies south of Oliver cove. Some rocks extend 100 yards from the south shore. A deep ravine encircles Calvary hill, through which passes the road from this cove to the church.

The coast from this to Grandy point is free from danger beyond 100 yards, and is surmounted by a serrated ridge, with several sharp peaks ranging from 526 to 550 feet in height.

Grandmother rocks are two groups of islets, separated by a clear channel 334 yards wide. The southern group contains the highest islet, which is 30 feet above high water, and bears ENE., distant $1\frac{1}{2}$ miles from the north extreme of Great isle of Valen. A round rock lies close NE. by E. of it; a rock that covers lies close SE. by S.; a rock with 3 feet water is situated nearly 200 yards SW. by W.; and a rock which dries 4 feet lies 250 yards N. by E. from the highest islet. A rock with 2 feet water lies 100 yards from the northern dry rock.

The islets in the northern group are all above high water, the highest being 7 feet. There is deep water at 100 yards from this group.

Whales back, a rock that dries 4 feet, bears E. by S., distant 1,800 yards from the north extreme of Great isle of Valen. It is steep to on all sides but the west, from which a shoal with 15 feet water on it extends 200 yards. This rock nearly always shows by a breaker.

Two rocks, covering a space 100 yards long, with 4 feet least water, bear N. by E. $\frac{1}{2}$ E., distant three-quarters of a mile from Grandmother rocks, and a shoal with 12 feet lies at the same distance on the bearing of N. $\frac{3}{4}$ W. Two shoals, with $4\frac{1}{2}$ and 5 fathoms on them, lie a little more than 200 yards, respectively, SSE. $\frac{1}{4}$ E. and S. by W. $\frac{1}{4}$ W. of this shoal. **Sam Adams shoal**, with $5\frac{1}{2}$ fathoms, bears N. $\frac{1}{4}$ E., distant a mile from Grandmother rocks, and a shoal with $4\frac{1}{2}$ fathoms water lies nearly midway between it and the rock with 4 feet water.

The east extreme of Great isle of Valen, bearing S. by W. $\frac{1}{4}$ W., leads east; and the beach at Redland, bearing SW. $\frac{1}{2}$ S., leads close north of these dangers.

Big shoal, with $3\frac{1}{2}$ fathoms water, bears SSE., distant 850 yards from Grandmother rocks. Little isle of Valen open east of Great isle of Valen, bearing SSW. $\frac{1}{4}$ W., leads east of this shoal.

Great isle of Valen is separated from the mainland by a deep channel half a mile wide. It is much indented and intersected by many valleys. The hills attain an elevation of 520 feet, and picturesque lakes are situated among them. The summits of most of the hills are bare, but the valleys are thickly wooded.

The island is 3 miles long, nearly $1\frac{1}{2}$ miles broad, and terminates towards the north in an isolated wooded hillock 180 feet high. A rock that dries is situated close northeast of the square rock which terminates this point, and a beach of shingle lies inshore of the hillock.

Pete cove, on the east coast, nearly $1\frac{1}{2}$ miles from the north extreme, contains several islets, the eastern and highest 8 feet above high water. A rock lies between the two eastern islets, but the water is deep to the eastward. Pete cove head, a bare isolated hill 260 feet high, stands north of this cove.

Storehouse cove, an indentation 800 yards deep, terminates in a small bight, 100 yards in diameter, where fishing craft find good shelter. Sugar loaf island, a cone 43 feet high, lies in the middle of the entrance, and Blow-me-down, a conspicuous bluff 425 feet high, falls steeply to the north entrance point. Shoals fringe the shore below that hill for 100 yards.

A rock, with less than 6 feet water on it, bears SSE. $\frac{3}{4}$ E., distant 70 yards from Sugarloaf island, and another rock, with 12 feet water on it, lies 100 yards NE. by E. of the first named. A rock, with 7 feet water, is situated 60 yards SW. by W. of Sugarloaf island. A small islet is joined to the south shore by shoal water, and off the north shore is situated a smaller rock, from which two rocks that dry at low water extend to the southward.

Directions : To enter, pass north or south of Sugarloaf island in mid-channel, and then between the two smaller islets west of it. The anchorage is in 7 fathoms, close within the islets. A small rock lies close to the shore west of the anchorage. Several houses are built at the head of this cove.

Isle of Valen harbor, on the south side of the island, is available only for small vessels; it is sheltered by Little isle of Valen, Dutch cap, and Canary isles. A wharf is situated on the east shore, alongside which vessels may lie in 5 fathoms, but the approach is encumbered with shoals.

Isle of Valen harbor may be recognized by a flag-staff erected on a small hillock on the north side of the entrance, 38 feet above high water. The entrance is about 50 yards wide, and is clear of danger. Immediately within the harbor expands to 150 yards in diameter, and the wharf is situated on the north side of this expansion. Again narrowing, and with a sharp bend to the northward, the harbor opens into a perfectly sheltered basin 250 yards in diameter. Both outer and inner portions have an even depth of 5 fathoms, but a bar joins the opposite shore just within the narrows, with only 12 feet on it at low water, and a sunken rock lies in the middle of the bend, off two islets. The point close north of the wharf is foul for a few yards, otherwise the shores are steep-to. Small vessels may lie in perfect safety in the outer basin or alongside the wharf.

Directions: To enter from the southward, keep the south side of Canary isles or the north side of Little isle of Valen close on board, steering NE. $\frac{1}{2}$ E., and before the houses at Grandy point are shut in with Canary isles bring the fall of the cliffy hill at the head of the harbor in line with the south point of the entrance, NW. $\frac{1}{2}$ N., and this mark kept exactly on will lead to the entrance of the harbor.

Entering from the eastward keep the summit of High look-out, over Presque, in line with the north point of Little isle of Valen till the harbor is open of Dutch cap, round the rocks off the latter, and steer for Canary isles till the fall of the cliffy hill is in line with the south point of the entrance to the harbor, when proceed as before.

Dutch cap is a conical island, 600 yards long, 266 feet high, and composed of two parts, joined by a low narrow isthmus. The western and lower part is faced by reddish cliffs.

A channel 100 yards wide, with 6 fathoms in it, separates Dutch cap island from the south extreme of Great isle of Valen.

Three rocks that cover at high water lie nearly 200 yards from the southeast side of Dutch cap island.

Little isle of Valen is about three-quarters of a mile long and 400 yards broad; the south extreme is surmounted by a cone 327 feet high, and it is separated at the north extreme from Dutch cap island by a passage 600 yards wide. The west extreme is low, and a short distance from it is situated an isolated rock with 8 feet water on it. A ledge 100 yards in extent, with 3 feet water on the shoalest part, lies 133 yards SE. by S. of the south extreme.

An islet 43 feet high is nearly joined to the southeast side, and a rock with 5 feet water on it lies 200 yards from the northeast extreme.

The summit of High look-out, over Presque, in line with the north extreme of Little isle of Valen leads north of this rock and south of those off Dutch cap island.

Canary isles are a group of low rocks, the highest covered with grass and 23 feet above high water.

Shoals extend in all directions and almost block the channel north of these islets.

A shoal with 12 feet bears E. by S., distant 300 yards from the highest, and Trinity shoal, with 9 feet water, extends 200 yards NE. by E. from the northernmost of Canary isles.

Net rocks lie off the shore of Great isle of Valen, NE. by E. of Canary isles, and are 4 feet above high water. A rock, with one foot water on it, lies 100 yards westward of Net rocks.

Betty island, 84 feet high, round, and covered with brushwood, is joined at low water to the southwest extreme of Great isle of Valen. A conical hill 480 feet high lies close within Betty island.

Coast.—The west shore of Great isle of Valen is almost straight. Francis cove, a small bight with a few houses round it, is situated half a mile from the south point. A sunken rock lies close to the north point of the cove. Net rocks, one foot above high water, are joined to the shore half a mile north of Francis cove, and a rock with 5 feet water is situated $1\frac{1}{2}$ miles SSE. $\frac{3}{4}$ E. of the north extreme of the island and about 80 yards from the shore.

Grandy point, situated 1,600 yards southwest of the south extreme of Little isle of Valen, is the name of a settlement surrounding a cove nearly 200 yards in diameter, that affords good shelter for fishing craft in 4 fathoms from all winds but those from northeastward. A small islet with a house on it lies north of the cove, and the south entrance point is foul for a short distance.

Grandy point rock is the turning point to the westward of the reach, between Great isle of Valen and the main; it just covers at high water, and has foul ground extending 200 yards to the southward of it.

The land south of Grandy point comprises a flat ridge, backed by a peaked hill 414 feet high, behind which rises another sharp peak 526 feet above high water.

Rocky cove is situated half a mile southwest of Grandy point rock, and is surrounded by cliffs, at the west extreme of which a brook flows into the sea.

Rocky cove sunken, a small rock that dries 4 feet, lies SSW. $\frac{1}{4}$ W., distant 250 yards from Rocky cove north entrance point. Foul ground nearly joins the rock to the point, and two shoals, the outer of which has 12 feet water on it, extends E. $\frac{3}{4}$ N., for a distance of 400 yards from the rock.

The coast to the southward of Rocky cove is rugged and cliffy, falling from hills covered with moss, and is foul for a short distance.

Brook rock, with 10 feet water on it, lies S. by W., distant 1,050 yards from Rocky cove north entrance point. Stony point rock, with

10 feet water on it, lies 150 yards from the shore, at 200 yards NE. by E. of Stony point, a rugged projection sheltering the cove of the same name, situated $1\frac{1}{2}$ miles south of Rocky cove.

Long point, a narrow promontory 89 feet high, extends 250 yards from the coast at $1\frac{1}{4}$ miles south of Rocky cove. Some rugged rocks lie north of the point, the lowest of which covers at high water, and shelter a small cove with a beach of shingle.

Patrick island, 27 feet high and bare, is situated 1,300 yards southwest of Long point; another small islet lies close east of it, and sunken rocks that break in ordinary weather extend east and south for a distance of 200 yards from Patrick island. This island is the dividing point of two coves and the turning point of the entrance to Presque harbor. In the northern of the coves is situated a rock that dries one foot at low water.

Red island, 4 miles long and 2 miles wide, differs in character from Newfoundland generally, and the coast of Placentia bay particularly. The hills attaining an elevation of 880 feet, are more massive in form, with smooth slopes, and are separated from each other by deep valleys. The highest is situated near the middle of the island, about a mile from the southwest extreme, and another flat-topped summit of nearly the same elevation lies a little to the westward of it. On the western slope of the highest hill is situated a gray spot that, when seen from the westward, appears like a small cloud or smoke. A conical hill, 862 feet high, slopes to the southwest extreme, and the Tolt, a sharp cone 723 feet high, is situated about the middle of the island and a mile from the northeast extreme; a white stripe extends from the summit nearly two-thirds down the north face of this hill. A hill surmounted by a conspicuous boulder 505 feet above high water is situated over the north extreme, and the east shore is backed by wooded hills, Harbor-tolt, the most conspicuous, being a truncated cone 465 feet high. The east shore is formed by rugged points with shingle beaches intervening off which temporary anchorage may be obtained by large vessels in 10 fathoms, with shelter when winds blow from the shore.

Red island harbor is available for a few small vessels only, and is fronted by several extensive rocky shoals. It is 267 yards deep and about 100 yards wide, with 8 feet water in it. A thriving settlement surrounds the harbor.

The outer shoal, with 3 fathoms water on it, lies SSE., distant 250 yards from the north entrance point of the harbor.

A rock with 1 foot water on it, the summit of a shoal 200 yards in extent, lies S. $\frac{3}{4}$ W., distant 467 yards from that point, and a rock with 2 feet water on it is the shoalest spot of a similar bank, and is situated SW. $\frac{3}{4}$ S., distant 300 yards from the same point.

Pig ledge shoal, with $5\frac{1}{2}$ fathoms water, bears SE. $\frac{1}{4}$ E., 400 yards from the north point of Red island harbor.

Cochrane cove, 200 yards deep, with a shingle beach at the head, lies half a mile south of Red island harbor. Shoals extend 300 yards from the south entrance point of this cove, which is low and rocky. Little Seal island well open east of Red island, bearing N., leads east of these shoals.

Cochrane hill, 589 feet high, is conspicuous when seen from north or south, and is situated three-quarters of a mile south of Cochrane cove.

Coast.—The south and west shores of Red island are fringed by rocks, and several streams flow over the cliffs from lakes in the valleys of the interior. A shoal with 13 feet water on it lies 350 yards SW. by W. of Ragged point, the south extreme of the island. The west shore is remarkable from the red color of the cliffs, which shows conspicuously when the sun is high and bright.

Hole-in-the-wall point, the west extreme, is a small projection of a reddish-gray color, and is so named from a hollow through it. A shoal lies close off the point.

A large bank, with $5\frac{1}{2}$ fathoms water, lies half a mile WSW. of the southwest point of Red island.

Southwest cove, on the west shore, is fringed by a beach of shingle. Small fishing vessels find shelter here with off-shore winds, in 6 to 9 fathoms. Southwest cove head, west of this cove, is also known as Blue point, from the apparent color of the land in ordinary weather. Long point, in the middle of the west shore, is low and sloping. Shoal water extends nearly 200 yards from its extremity.

Goat island, 750 yards long, and narrow, is surmounted by a remarkable tree, 108 feet above high water; the west and south shores are foul, but the east shore is steep-to. There is no passage for a stranger between Goat island and the north extreme of Red island, from which it is distant 250 yards.

Goat island sunker dries 2 feet at low water, and is situated W. $\frac{1}{4}$ S., 800 yards from the south end of Goat island.

A rock, with 3 feet water, bears NE. by E. $\frac{1}{4}$ E., 250 yards from the sunker, and is 400 yards distant from Goat island.

A rock, with 6 feet water, lies NW. by N., 400 yards nearly from Goat island sunker. Ironskull rock open north of Goat island, ENE., leads close north of these rocks.

Little Seal islands, 2 miles northeast of Goat island, are a small group, occupying a space 700 yards long and 250 yards broad; the highest, situated at the east extreme, is 91 feet high and covered with small trees.

Great Seal island, 900 yards northeast of Little Seal islands, is nearly a mile long and half a mile in extreme width. It is flat in outline, 346 feet high, and falls in steep cliffs to the southward, but slopes gradually to the northward. The shores should not be approached nearer than 200 yards.

Bird islands are a group lying a mile distant from the east shore of Merasheen island, and are 1,200 yards long in a north and south direction. The southern island is wooded and shaped like a wedge; the northern is composed of several gray mounds, with low rocks extending from the east extreme and others lying off the north shore.

A rock awash at low water is the summit of a shoal situated NW., distant 134 yards from the rock at the northeast extreme of the northern island.

Duck rocks are two small bare islets, the higher of which is 6 feet above high water and is situated 600 yards north of Bird islands. A shoal with 3 fathoms water on it lies 200 yards east of the highest rock.

Rosiru sunken dries 2 feet at low water and is situated S. by W., distant a little more than 800 yards from the south extreme of Bird islands. A ledge extends north for 250 yards from this danger. A rock with 16 feet water on it lies 150 yards SW. by W., and a shoal with 6 fathoms water lies SSW. $\frac{1}{2}$ W., distant 400 yards from Rosiru sunken.

Long island is 13 miles long and $1\frac{1}{2}$ miles broad at the greatest width. It contains two good harbors, one moderately good bay, and several coves that afford good shelter from the prevailing winds. Buffet head, the south extreme, is a remarkable perpendicular cliff about 300 feet high, the extremity of a mass of high land, the summit of which is 599 feet above high water, and shows conspicuously from Placentia bay.

Iron island, a bluff flat-topped island, 245 feet high, lies off this extreme, and is bold to all round.

Ironskull rock, SE. by S. $\frac{1}{2}$ mile from Iron island, is 14 feet high, and steep to except on the southwest side, off which, 100 yards distant, is a reef that covers 2 feet at high water.

Dog islands are three wooded islets, the highest 135 feet high, separated by a clear channel 400 yards wide from Long island. There is a passage between the southern and two northern islands in mid-channel, but none between the two northern.

Tides cove sunken covers 4 feet, and is situated SW. $\frac{1}{2}$ W. 550 yards from the western Dog island, and 150 yards from the shore.

Buffett harbor is on the east side of Long island, 3 miles from the south extreme, and the entrance may be easily recognized by Buffett island, a cone 151 feet high E. $\frac{3}{4}$ N. half a mile from the entrance, steep-

to except off the southwest point, from which a shoal, with 4 fathoms water, extends 100 yards.

A shoal, with 4 fathoms water, lies SW. by W., 450 yards from the west point of this island; and Matthews rock, that covers 5 feet, and often does not break, is situated N. $\frac{1}{4}$ E., 450 yards from Buffett island. Any part of Dog islands seen open east of Buffett island will lead east of this rock.

Dicks and Isaac islands are situated south of the entrance to the harbor, and are separated from Long island by narrow channels navigable for boats alone. On the shores of these channels is a thriving settlement called the Tickles. Isaac island, 108 feet high, is long and narrow. Dicks island, 124 feet high, makes in several hummocks, and is continued to the southward in a wedge-shaped neck. The northwest point of this island is bordered by a shoal for 100 yards, narrowing the entrance to the harbor. The north side of the entrance slopes from two conspicuous cones in one ridge, the higher 363 feet above high water, and is bold to within a few yards.

Within the entrance the harbor divides into three arms, the southern between Dicks island and a projecting point of Long island terminating in a pinnacle rock, the western or harbor proper, and Northeast arm. The southern has shallow water stretching 100 yards from the shores, and Seal rock, awash at high water, close to the west point. The harbor proper will be easily recognized by the church and prominent house, and wharves. There is no danger on entering, but a shoal extends 100 yards off a low point near the inner entrance on the east side, and may be avoided by keeping the whole of Buffett island a little open south of the north point. Several coves lie around the harbor, and an islet close off the church, connected to the shore at low water.

Anchorage.—A large vessel should anchor immediately within the entrance in 17 to 20 fathoms, but small vessels may anchor in either of the arms as convenient.

Northeast arm runs up $\frac{1}{2}$ mile, and is 350 yards broad. There is no danger but a shoal of 16 feet of water 400 yards within the entrance and 100 yards from the east shore.

Little harbor, a wedge-shaped indentation half a mile deep, is situated $1\frac{1}{2}$ miles north of Buffett harbor, and is only available for small craft, which may find good anchorage in 4 fathoms, mud. The entrance is marked by Murphy rock, 10 feet high, close to the south point, and Little harbor rock N. $\frac{1}{4}$ E. 600 yards from Murphy rock, and 4 feet above high water.

A rock, awash at low water, lies a little east of the line of these two rocks, nearly midway between. The entrance is north of Little harbor rock, and thence mid-channel to the anchorage.

Collett cove is northwest of Kearney head, a steep bluff 212 feet high, $1\frac{1}{2}$ miles from Little harbor. The cove is immediately northwest of Collett cove island, 50 feet high, affording fair anchorage in 10 to 5 fathoms, sand, with shelter from all winds but those from N. to E. A rock that covers, is situated 100 yards off the north point of the cove, and should be avoided when turning in.

A deep bay extends $2\frac{1}{2}$ miles from Collett cove, at the north end of which is Shag roost, a perpendicular rock 77 feet high, and other low islets off it.

Haystack harbor, $6\frac{1}{2}$ miles to the northward of Buffett harbor, is formed by a wedge-shaped peninsula 256 feet above high water, joined to the main by a shingle beach on which are some houses. The name is derived from the Haystack, a square islet about 50 feet high N. by E. $\frac{3}{4}$ E., 400 yards from the north extreme of the peninsula. There is good summer anchorage south of the beach in $5\frac{1}{2}$ to $4\frac{1}{2}$ fathoms, mud, with shelter from all winds, and the inhabitants state that even in winter gales small vessels lie there securely. Both sides of the entrance to the harbor are clear a short distance from the shore.

Bread and cheese islands are two in number, lying off the north extreme of Long island (Long island point). The northern is wooded and conical, 229 feet high, and a little more than a mile distant from Long island point. The southern island, flat and cliffy, is 800 yards from the northern. A shoal, with 15 feet water, lies 300 yards from the south extreme of the northern island.

The Jerseyman, a bare rock, 14 feet above high water, is a quarter of a mile from the southern island, and one-third of a mile from Long island point. Off this latter point is a small islet, between which and the Jerseyman is a clear deep passage.

Coffin ridge extends 600 yards from the point north of Spencer cove and has $6\frac{1}{2}$ fathoms least water.

Spencer cove, on the west side of Long island, 2 miles south of Long island point, is half a mile deep, dividing at the head into two coves. Both have good holding ground in 6 to $4\frac{1}{2}$ fathoms, but the southern is the most sheltered. Rocks, 4 feet above high water, lie just within the north point which extends SE. by E. $\frac{3}{4}$ E. 200 yards as a reef, a part of which is awash at low water. When entering, it is best to keep the south shore on board to be sure of clearing these rocks.

The west coast of Long island south of Spencer cove is bold with several coves, and Green islet, 31 feet high, a small rock, lies NW. $\frac{1}{4}$ N. 700 yards from the north point of Muscle harbor.

Muscle harbor is a fine basin on the west side of Long island a little more than 3 miles from the south extreme. The whole harbor is well sheltered and the holding ground is good, but the water is deep

in the anchorage for large ships. The main portion of the harbor is a mile long and half a mile broad, has 19 to 21 fathoms, mud, and split into two arms at the northeast end, in the western of which small vessels may anchor, but a short sea heaves into the eastern with S W. winds. At the mouth of Muscle harbor are three islands. The northern is a flat-topped island 103 feet high, that terminates to the north in a low long point. There is no passage for vessels between the mainland and this island. The middle island has two summits 130 feet high, and falls in cliffs on the north side. A rock that covers, lies off the north part of this island, but by keeping the south shore of the north island on board the rock may be avoided, and $4\frac{3}{4}$ fathoms water carried into the harbor. The southern islet is low.

The best channel is east of this islet, keeping in mid-channel to avoid a rock situated a few yards from the south shore. There is good anchorage for small vessels off a cove just within this entrance in 11 fathoms, but a rock lies close off the east point of the cove, and should be remembered when anchoring. An islet with a round summit 68 feet high is situated on the west side of the northwest arm, west of which are several shoals. The passage is to the east of this island, mid-channel between it and the eastern shore.

North Wild cove, a deep indentation with no shelter, is situated $1\frac{1}{4}$ miles south of Muscle harbor.

Barren island, separated from the entrance to Muscle harbor and the land south of it, by a clear deep channel 400 yards wide is $1\frac{1}{2}$ miles long, 800 yards wide, and 315 feet high. The east shore of the island is bold and cliffy, but off the west side are several shoals, and this coast should not be approached within a quarter of a mile. A small islet 27 feet high, is situated close to the south point, off which 100 yards distant is a rock that nearly always breaks.

Merasheen island is $19\frac{1}{4}$ miles long, 5 miles broad at the widest part near the southwest extreme, and narrows gradually to the northward, being $1\frac{3}{4}$ miles wide at Indian harbor, and nearly disconnected at Dog harbor and Great Brûlé. Gallivan's hill, the highest part, is 936 feet above high water. The southern hills are flat, fall in long slopes, and are covered with moss, while to the northward bare rugged hills and wooded summits prevail.

Virgin cove, situated 800 yards northeast of Breakheart point (the nearest part of Merasheen island to Great isle of Valen), is 800 yards wide and 700 yards deep. At the head are two beaches of shingle in front of grassy meadows, and several houses are built on the east side. Shoal water extends nearly 200 yards from the shore. Steep cliffs stand inshore, over which a conspicuous waterfall runs to the sea. Anchorage, with off-shore winds, may be had in $6\frac{1}{2}$ to 7 fathoms, sand. Seal rock, which covers at high water, lies close to the east entrance point.

Coast.—The coast trends northward from Virgin cove for $5\frac{1}{2}$ miles to Merry harbor and has the same characteristics throughout, steep cliffs, with deep water a short distance from them, with a few coves. A range of bare hills, 470 to 800 feet high, lies a short distance inland, and those near the coast are generally wooded. A round hill 490 feet high, with a conspicuous tree, stands three-quarters of a mile inland, about $1\frac{1}{2}$ miles southwest of Merry harbor.

Numerous fishing banks lie off this shore, but none are dangerous.

Merry harbor is 800 yards long, 300 yards wide, and contains excellent anchorage in 4 to 6 fathoms. Two flat islets, 8 feet above high water, and nearly joined together, lie close to the south entrance point, being separated by a narrow channel, through which $3\frac{1}{2}$ fathoms can be carried, and two small islets lie close to the north entrance point. The northern portion of the harbor is shoal.

Vessels may enter between the two groups of islets and take up position as convenient.

Water may be procured in abundance from a waterfall.

In autumnal gales, heavy squalls sweep over the harbor with SE. winds.

Ragged islands are an almost innumerable group, situated on the northwest side of Merasheen island. Only those in the outer channel or near the first anchorage from the southward have been surveyed. They extend $11\frac{1}{2}$ miles, and there is clear passage between them and Merasheen island, known only to those who live there, and several passages between the different islands of the group, but none available for large vessels without local knowledge. Vessels drawing 10 or 12 feet water can pass through these about to be described.

Numerous dangers lie off these islands, which should not be approached without great caution.

Black rock, the westernmost, is 18 feet high, dark, bare, and flat. It is steep-to on all sides but the east, from which a ledge extends a short distance.

Green islands, next to the eastward, consist of two rocks, flat and grassy, the higher 41 feet above high water. A shoal extends a short distance from the western island.

A rock with 6 feet water is the outer of shoals extending 600 yards northward of Green islands, and is 250 yards in extent east and west. A shoal with $3\frac{1}{2}$ fathoms water lies NNE., distant a quarter of a mile from Black rock, and a rock with 9 feet water bears ESE. $\frac{1}{4}$ E., a little more than 400 yards from Green islands, or about half-way between them and Sugarloaf islet.

Sugarloaf islet is 72 feet high, conical in shape, and situated 750 yards eastward of Green islands. Some low rocks lie close off this island, but with this exception it is bold-to.

Tinker rocks, two small granitic islets 27 feet high, lie E. $\frac{3}{4}$ N. distant 600 yards from Sugarloaf islet. There is no danger off them on the north, south, and west sides. A rock with 10 feet water lies NE. $\frac{1}{4}$ E. 300 yards, and another with 12 feet water bears E. $\frac{3}{4}$ N., distant 550 yards from the eastern of the Tinker rocks.

Crane island is separated by a clear channel a quarter of a mile wide from Sugarloaf islet. It is nearly three-quarters of a mile long and 800 yards broad. The summit, 195 feet above high water, appears flat, with a slight fall to the southward, but on the island are several hills with deep ravines between them, and it is nearly covered with small trees. The sides are principally of steep dark cliff, but there is a landing-place on the south side. A rock, with 9 feet water, lies W. by N., distant 300 yards from the west extreme of Crane island.

Dock islands are three wooded cones, occupying a space 800 yards in extent, and situated south of Crane island, with deep water between. Some rocks lie off the north extreme, but they are steep-to. The highest of the Dock islands is in the middle, and attains an elevation of 138 feet. A reef extends a short distance from the northern one.

Dock island sunker dries 3 feet at low water, and lies S. $\frac{3}{4}$ E., distant 400 yards from the south extreme of the southern island. A rock with 2 feet water on it lies midway between this sunker and the east extreme of Dock islands.

The passage between Dock and Crane islands is clear in mid-channel.

Lockyer rock, lying NW. $\frac{3}{4}$ W., distant 600 yards from the northernmost of Dock islands, is gray, flat, and 3 feet above high water.

A rock with 2 feet water on it lies nearly 200 yards west, and a shoal with $5\frac{1}{2}$ fathoms water lies 300 yards north of Lockyer rock.

Jean de Gaunt island is the most remarkable of the southwestern portion of Ragged islands, being surmounted by a conspicuous hill with a sharp fall near the summit, and 388 feet above high water. This island is $1\frac{1}{2}$ miles long and 1,200 yards wide, and contains numerous hills divided by deep valleys. The most remarkable, next to the summit, are a bluff hill with a triangular rock at the top, 292 feet above high water, over the southwest extremity, and a sharp peaked hill, 282 feet high, near the north extreme. The shores are bold and cliffy, with a few small coves, to which the hills slope less steeply.

Jean de Gaunt harbor is a small cove, nearly 200 yards deep, that affords shelter only for small craft, and is situated on the west shore of the island, 800 yards from the south extreme. A small islet, 8 feet above high water, lies close to the north extreme. Small craft enter by keeping the south shore of the harbor on board.

Jean de Gaunt harbor sunker, awash at low water, bears WNW. $\frac{1}{4}$ W., distant 850 yards from the entrance, and a shoal with $5\frac{1}{2}$ fathoms on it lies 200 yards beyond.

Frank head, a projection with two wooded mounds, 106 and 89 feet high, forms the north entrance point. When seen from this direction a dark conical hill will be seen in the middle of the island, up a deep valley. Three shoals lie off this head, with 3 feet least water on them.

Anchorage.—The anchorage off Jean de Gaunt island is situated at the north extreme, off a cove where are some white houses. The approach from the north is only possible for vessels of 10 feet or less draught, and then only with a local pilot, but there is a clear channel from the southward. A rock that dries is situated close to the west side of the cove, and from the point east of the anchorage shoals extend east and north for a distance of 100 yards, with 7 feet water on the outer edge of the latter.

The east side of Jean de Gaunt island is bold, falling almost perpendicularly from the summit. Lately cove, 200 yards deep, lies near the south extreme. From it two deep ravines with streamlets in them extend into the island.

Deer rock, a small pinnacle just above high water, is situated close to the shore near the middle of the east side.

Directions for Jean de Gaunt anchorage.—Mid-channel should be kept between Merasheen island to the eastward and Copper island rock to the westward. Jarvis islands should be approached within a quarter of a mile, and the vessel should then pass between Crève islands on the north and Jarvis and Jean de Gaunt islands on the south. Rounding the latter at 100 yards, the anchor may be let go off the cove before described.

Large vessels should not proceed so far, but anchor between Crève islands and the entrance to the cove, in 14 to 16 fathoms, mud.

Copper island is the southwest extreme of a group of granitic islets lying southeast of Jean de Gaunt island. It is 75 feet high, 350 yards long, 130 yards broad, and covered with small scrub. It is steep to on the east and west sides, but a reef extends from the north extreme in the direction of the island and terminates in a sunken rock 134 yards from the high-water line.

Copper island rock is nearly connected, by a sunken ridge that almost dries at low water, to the southeast extreme of Copper island; it is bare, flat, and 3 feet above high water.

A rock, with 16 feet water, lies close to the south extreme.

Saddleback is situated a quarter of a mile eastward of Copper island, and the channel between is clear. It is a small narrow islet, 30 feet high, with a curious tuft of trees at the summit and burnt turf on the slopes. Rocks that cover at high water lie off each extreme of this islet.

Gray Gull island, close north of Saddleback and the largest of this small group, is nearly three-quarters of a mile long, 450 yards broad,

and surmounted by a flat hill 94 feet high. This slopes gradually to the north and east, two smaller peaks rising on the northern slope. The island is intersected by a deep valley to the westward of the summit, in which are two ponds, that discharge through a small beach of shingle at the head of a cove on the northwest side. Small rocks, that cover, extend a short distance from the east side. Shoals extend 100 yards from both of the northern points of the island, and the west side is foul 200 yards from the shore. There is no passage for a vessel between Saddleback and Gray Gull islands.

Duck island lies 100 yards east from the middle of the east side of Gray Gull island. It is 250 yards long, flat, wooded, and 54 feet high, with no dangers off the south side.

Pinnacle island, so named from the tuft of trees at the summit of a sharp cone that surmounts the island at an elevation of 108 feet above high water, is 400 yards long, 200 yards broad, and lies north of Duck island. A reef that dries extends a short distance from the north extreme, and a small round rock lies close to the south extreme.

South Johnny Moore island, 300 yards long, is separated by a narrow shoal channel from the north extreme of Pinnacle island, and is formed of three hummocks. The northern is flat and 45 feet high, the middle is square and slightly lower, while the southern is round. A shoal extends 100 yards from the north extreme, and a rock with 7 feet water lies close off a rocky islet near the southwest extreme. This island is only 150 yards from Jean de Gaunt island, and shoals narrow the passage between it and Deer rock to 100 yards.

Jarvis islands are three in number, joined together at low water, the whole being a little more than half a mile long and 600 yards broad. They inclose a small boat harbor, which at low water can be entered from the northeast side only, through a channel between the northern and southeastern islands, with 2 feet water in it, but inside the water deepens to 5 fathoms. The southeastern island is round, 115 feet high, and covered with spruce and fir. There is a deep cove on the southwest side, from which a ravine extends and divides the summit from the wooded ridge over the south shore. The northwestern island is long and narrow, with two wooded hills near the middle, the highest 97 feet above high water. The northern island is joined to the latter at low water. It is covered with moss, and 53 feet high. Two rocks with less than 6 feet water on them lie 134 yards from the south side of these islands.

Crève islands, a group of many small islets, are separated by clear passages 450 yards wide from the northeast extreme of Jarvis islands and 400 yards from Jean de Gaunt island. The southern are two reddish-gray rocks 10 feet high. Roost island, the easternmost, is round, wooded, and 59 feet high. The whole are nearly joined together at

low water, and there is no passage between them for a vessel; but the outer sides of the group have no danger beyond 200 yards from the coast.

Lower Gray Gull islands lie northeast of Crève islands, leaving a narrow passage between. The highest is flat, wooded, and 77 feet high. These islands are half a mile long and 700 yards wide.

Long island lies 200 yards east from the east extreme of Jean de Gaunt island, and terminates to the southward in a bold bluff 70 feet above high water, that slopes gradually to the north extreme, from which a reef extends 250 yards. This island forms the east side of the anchorage.

Pincher island, 120 feet high, has a flat top, with turf and bare white rock in patches near. It is situated northward of Long island, and there is only a narrow passage between it and the small islets that nearly join Jean de Gaunt island.

South Tilt island is the next large island to the northward, and is surmounted by a dark peak 246 feet high, with a sharp hill below, 222 feet high.

Martin Galton island is round, wooded, 131 feet high, and separated by a narrow channel only from the east side of South Tilt island.

King island, the largest of the Ragged islands, is 5 miles long and nearly divided in several places by deep coves from either side. The east shore is unsurveyed.

Castle Dermot, the southeast extreme, is a bold bluff, falling precipitously to seaward, and near the south extreme are situated two prominent hills, 241 feet high, covered with yellow moss. North of King island are situated a labyrinth of small islands and rocks; those immediately bordering on the channel only will be described.

Galton island, situated 600 yards NE. by E. of Jean de Gaunt island, has a square summit 76 feet high. A small creek on the south side, surrounded by houses, affords good shelter to fishing craft. The northwest and southwest sides are free from danger. A chain of islets and rocks leaves only narrow passages between it and Jean de Gaunt island.

Galton island sunkeners cover at high water, and are situated NE. $\frac{1}{4}$ N. and SW. $\frac{1}{4}$ S., distant 250 yards from each other, the western lying W. $\frac{1}{4}$ S., distant 900 yards from the southwest extreme of Galton island.

Brandies shoal consists of three dangerous rocks in a line northeast and southwest, with several deeper shoals about them covering a space 300 yards in diameter. The two western dry 2 feet, and the eastern has 2 feet on it at low water. They generally break.

John Adams shoal, with $6\frac{1}{2}$ fathoms water on it, lies SW., distant 500 yards from Brandies shoal west extreme.

Forked Duck rock, about 3 feet above high water, and so named from the forked appearance presented by the two small pinnacles that surmount it, lies S. $\frac{1}{2}$ W., distant $1\frac{1}{10}$ miles from White islands. It is small and steep-to.

Western sunker, with 4 feet water on it, lies WSW. $\frac{1}{4}$ W., distant 800 yards from Forked Duck rock. There is deep water close to it.

Harbor islands, 60 feet high, are situated next northeast of Galton island, and inclose a small boat harbor, round which several houses have been built. A ridge of small islets and rocks extends in a west direction from them, the outer rock, awash at low water, being distant 667 yards. A shoal with 15 feet water lies 200 yards SW. by W. of this rock, leaving a passage 900 yards wide between it and Forked Duck rock.

Shag island stands out prominently about half way between Ragged and White islands. It is 77 feet high, round in shape, and on it some stunted trees grow over white rock. Low islets join the north extreme, but there is no danger beyond 200 yards from them.

Roost rocks, 6 feet high, lie 100 yards from the west side of Shag island, and are continued a short distance by shoal water.

Shag roost sunkers lie, respectively, SW. $\frac{1}{4}$ S., distant 1,000 yards, and SW. $\frac{1}{2}$ S., distant 1,350 yards, from Shag island. The western dries 1 foot and is steep-to. The eastern dries $3\frac{1}{2}$ feet, and a rock with 6 feet water on it lies WSW. $\frac{1}{2}$ W., distant 200 yards nearly from it.

Broad cove, a good harbor for small vessels, is entered E. $\frac{3}{4}$ N. a little more than a mile from Shag island, and may be distinguished by Pond head, a round, wooded mound, 125 feet high, south of the entrance, and Tacks lookout, a bare topped hill 212 feet high that falls almost perpendicularly to the north side of the cove.

Cross islets extend north from Pond head, the outer being grassy and 22 feet above high water, while the next, south of it, is a small wooded cone about 30 feet high.

Duck island, 40 feet high, flat, and covered with small trees, lies close northwest of the entrance. A fringe of shoal water lies along the southeast shore, and a shoal with 7 feet water extends 200 yards north from the island.

Three islands lie north of the entrance and shelter the harbor. Parfrey island, the western and largest, may be approached within a few yards on the south side, but off the west side shoal water extends a short distance. The other islands are nearly joined at low water to Parfrey island and to the land under Tacks lookout.

A small islet, 10 feet high, lies north of Pond head, with a shoal extending a few yards from it.

The cove is 750 yards deep and 350 yards broad, but a shoal with 11 feet water lies close to the north shore, and the head is filled with rocks

that dry at low water. A small wooded islet lies just inside the entrance, and is steep-to on the north side, but there is no passage south of it.

Directions : To enter Broad cove Duck island should be made, and an E. by S. course steered for 750 yards, to Parfrey island. Pass between that island and the two small islets in mid-channel, and anchor in the middle of the cove in $4\frac{1}{2}$ fathoms, mud.

Middle island, 30 feet high and 100 yards long, lies NE. $\frac{1}{4}$ E., distant 550 yards from Duck island, and has no danger farther than 200 yards from it. It is covered with trees over grayish rock.

Harbor island, about 200 yards long and 49 feet high, is the next north of Middle island. The west and north sides are free from danger, but a rock lies 100 yards south of the west extreme, and another rock between it and Yawl cove island, the west extreme of the slope of Tacks lookout, which hill is continued to the northward by several wooded hillocks, a conspicuous peak over that shore being 145 feet high.

Tacks beach is the head of a bay 600 yards in diameter, and is only 50 yards wide between that bay and a cove on the east side of King island. A settlement with a school-house is built round a small bight west of the beach, and on the low projection separating them. Boats proceed to Buffet harbor (Long island) from Ragged islands by hauling over this beach and over a similar one at Dog harbor, in Merasheen island, whence they cross to Muscle harbor, which is connected by road with Buffet harbor.

Anchorage can be had here in moderate weather, but the holding-ground is bad.

Tacks head, north of the beach, is the most conspicuous headland in Ragged islands. It rises to a sharp peak 420 feet high, and falls in steep bluffs to the shore, which is free from danger.

Cooper cove, a small boat harbor, lies at the southeast base of Tacks head. A steep high hill separates it from Tacks beach.

A shoal with $7\frac{1}{2}$ fathoms bears NW. by W. $\frac{3}{4}$ W., distant 550 yards; and another with 6 fathoms water bears NW. $\frac{3}{4}$ N., distant 1,350 yards from Tacks head.

New harbor head, lying N. $\frac{1}{4}$ W., distant one mile from Tacks head, is a conspicuous square, wooded headland, 130 feet high, the summit of an island forming the west shore of New harbor. This harbor is a shallow inclosure available only for boats. The island forming the east side of the harbor is wooded, 203 feet high, and is separated from King island by Long reach, a narrow shallow channel. Several islets and bare rocks lie off the coast between Tacks and New harbor heads, but there is no danger beyond 200 yards west from them.

The coast of King island from this to Sayers gut, at the north extreme, is fringed by many small islets and sunken rocks, and should on no account be approached by a stranger.

Green island, the outermost, bears N. $\frac{3}{4}$ W., distant three-quarters of a mile from New harbor head; including the islets off it, it is 600 yards long, and is covered with wood, the summit being 100 feet above high water. Several small islets lie off both east and west extreme. A rock that dries 4 feet at low water bears WNW. $\frac{3}{4}$ W., distant 300 yards from the northwest extreme of this island, and a rock that dries lies between it and the island.

Yellow rock, so named from its color, is 14 feet high, and is situated E. $\frac{1}{4}$ S., distant 200 yards from Green island. The passage between them is clear. A rock that dries one foot lies close south of Yellow rock.

Seal islands, situated E. $\frac{1}{4}$ S., distant 350 yards from Yellow rock, are two cones covered with grass over white rock, the eastern and higher being 41 feet above high water. The passage between these and Yellow rock is clear of danger.

Rocks that dry lie ESE. $\frac{3}{4}$ E. and S. by W. $\frac{1}{4}$ W., distant 100 yards from them.

A rock that dries 4 feet bears SE. by E., distant 600 yards from Seal islands, and 400 yards from the shore of King island.

Marshall island, flat, wooded, and about 50 feet high, is 200 yards long, and steep-to on the north side. Islets and rocks extend a short distance from the southeast extreme, and a rock that dries 2 feet lies ESE. $\frac{3}{4}$ E., distant 250 yards.

The west shore of Ragged islands north of New harbor head is surmounted by several square hummocks, two of similar shape, named Tom bottom hills, being conspicuous, and 216 feet high. Northeast from these there is no special feature till North Tilt island is seen, which is surmounted by a tuft of trees 155 feet above high water, and is situated NE. by E. $\frac{1}{4}$ E., distant $1\frac{1}{10}$ miles from Marshall island. It is difficult for a stranger to distinguish the other islands, the passages between being narrow. Hollett islands, at the northeast extreme, are low and covered with small trees.

Baggs island, 6 feet high, dark and bare, lies north of the passage between Merasheen and Ragged islands. Rocks extend from it N. by E and S. by W. nearly 200 yards.

Four islets lie east of Baggs island, the southern round and wooded, the others low and bare. A sunken rock lies between the two easternmost.

A large bay in Merasheen island lies north of these islets, divided by a narrow neck from Great Brûlé harbor. A conspicuous white house, surrounded by cultivated land, is built on the south side of the bay. A

small wooded eminence, 66 feet high, stands on the narrow neck, on the summit of which a church has been erected.

Ledwick hills, two round masses 447 feet high, rise immediately southwest of Great Brûlé harbor. They show prominently from either side of Merasheen island. There is a red patch on the north slope, and a sharp-peaked, mossy spur, 282 feet high, rises over the coast north of them.

St. Bernard, a small cove north of the bay, has also some houses built round the shore. Several low wooded islets, with grass near the water line, lie off the east part of the bay; Duck islet, the northern, being black, bare, and 11 feet high. Sunken rocks and rocks above water extend 350 yards southwest from this islet.

Coast.—The northern part of Merasheen island is a high peninsula, surmounted by hills, which are rocky and bare on the west shore, covered with moss in the interior, and with small wood on the east shore, the valleys and most of the slopes being also wooded. The highest is 372 feet above high water and falls in a cliff to the west shore.

Stickland point, the north extreme of this peninsula, terminates in a small cliff 34 feet high. A rock that dries lies close north of the point, and two shoals lie to the northward, the outer bearing N. $\frac{1}{4}$ W., distant 300 yards from it. A shoal, with 15 feet water, lies N. $\frac{1}{4}$ E., distant 600 yards from the same point.

The northeast part of the peninsula terminates in a steep slope from a dark wooded hill, off which is situated Winging rock, a small bare islet 6 feet high. There is no shoal off the northeast side of this rock.

Stickland Cove rocks lie off the north side of this peninsula, the northernmost lying NNE. $\frac{1}{4}$ E., distant 1,400 yards from Duck islet. These rocks occupy a space 300 yards in diameter. A rock that dries at low water is situated NE. $\frac{1}{2}$ E., distant 550 yards from the northernmost of Stickland Cove rocks.

White island lies 750 yards from the northeast extreme of Merasheen island, but the navigable passage is narrowed to 450 yards in width by the shoals off Stickland point, and is available only for small vessels. Wooded hills surmount this island; the highest, a round hummock, 108 feet high, falls abruptly to the southeast extreme. A similar hill, 106 feet high, rises over the east extreme. A rocky cove extends into the south side. Two rocks that dry at low water lie nearly 100 yards from the southwest extreme, and a shoal with 4 fathoms lies nearly midway between that point and Winging rock. A small black rock, 5 feet above high water, lies off the northwest extremity, with deep water close north of it, and there is no danger off the east shore near the line of the points. A shoal with 6 fathoms water is situated 250 yards from the north point.

The channel between the north extreme of Merasheen island and Barren island is almost filled with fishing banks, ranging in depth from $4\frac{1}{2}$ to 20 fathoms, that cause a confused sea with SW. gales. The following only are dangerous:

A bank with 5 fathoms least water lies NW. $\frac{1}{2}$ N., distant 1,200 yards from Baggs island; a rock with $4\frac{1}{2}$ fathoms water bears NNW. $\frac{3}{4}$ W., distant 700 yards from Stickland point; and a shoal with 5 fathoms water lies NW. by W. $\frac{1}{2}$ W., distant 750 yards from the southwest extreme of White island.

Duck rocks are two small bare rocks, situated NE., distant 1,800 yards from the north extreme of White island. The northern and higher is 4 feet above high water, close west of which lies a rock awash at low water. These rocks are the summit of a bank extending from them 1,400 yards to the southwestward and 600 yards north, within the depth of 10 fathoms, on which are numerous shoals.

Rocks awash at low water lie, respectively, SSW. $\frac{1}{2}$ W., distant nearly half a mile, and SW. $\frac{1}{2}$ S., distant 800 yards nearly from Duck rocks. A shoal with 16 feet water on it lies a short distance north of the latter. A rock, with 10 feet water, bears SW. $\frac{1}{2}$ W., distant 1,100 yards, and another, with 16 feet water, bears N. $\frac{1}{2}$ W., distant 333 yards from Duck rocks.

Little Brûlé harbor lies east of the peninsula at the northeast extreme of Merasheen island, and is formed by that shore and some islands to the eastward.

Big island, 140 feet high, the largest, is covered with dark spruce trees and falls steeply all round. A small rock lies close to the north extreme, but with this exception there is no danger beyond 50 yards from the coast.

Batts island, situated 100 yards north of Big island, is also round and wooded. A rock lies close to the south extreme. There is a clear passage with $4\frac{1}{2}$ fathoms water in mid-channel between these islands.

An islet 7 feet above high water bears N. by E. $\frac{1}{2}$ E., distant 300 yards from Batts island.

Big rock, 14 feet high, bears E. by S., distant 450 yards from Batts island; it is flat and has a little grass near the top. Midway between the south extremes of this rock and Batts island is situated a reef that dries at half tide, and a bank extends northeast from them for 700 yards with less than 3 fathoms water on it. Several rocks that cover are situated on this bank.

Little Brûlé harbor is 500 yards long, 300 yards wide, and may be entered through the passage between Batts and Big islands, taking care to avoid the bank described above by keeping along the shore of Merasheen island.

Anchorage may be obtained in 10 to 8 fathoms, with good shelter from all but NE. winds.

Crabbe cove, a small boat harbor 200 yards in diameter, lies immediately south of Little Brûlé harbor, and is joined to it at high water. It affords good shelter for two or three schooners in 5 fathoms water, and there is no danger in it except a rock close to the grassy islet that forms the north point of the entrance. A wooded hill lies north and a mossy hill south of this cove.

Great Brûlé harbor is situated east of the narrow neck before described and $1\frac{1}{2}$ miles from the north extreme of Merasheen island. It is 700 yards deep, 500 yards wide at the entrance, and affords anchorage in 12 to 6 fathoms. A black rock 3 feet above high water lies 150 yards from the south shore, but is steep to the eastward.

Brûlé shoal, with 17 feet on it, is the least water on a bank lying E. by N., distant 800 yards from Brûlé head, south of Great Brûlé harbor.

Coast—The coast between Great Brûlé harbor and Rosiru point is of the same character as Merasheen island generally, steep-sided hills 341 to 523 feet high, covered with stunted spruce or yellow moss, between which the white rock is seen, and there are only the dangers about to be described beyond a short distance from it.

The Castle, a small square rock 14 feet high is situated 2 miles S. by E. of Great Brûlé harbor and 750 yards from the shore of Merasheen island. A flat rock lies close east of it; rocks that dry at low water extend about 200 yards southeast and 100 yards southwest; a fishing ledge with 4 fathoms lies NE. $\frac{3}{4}$ N., distant 350 yards, and a shoal with 12 feet on it bears SW. by S., distant 750 yards from the Castle.

A rock awash at low water lies close to the shore of Merasheen island, bearing SW. by W. $\frac{3}{4}$ W., distant 750 yards from the Castle.

Butler island consists of two wooded hummocks 179 and 183 feet high, joined by a low neck, with a beach of shingle on the north side of it, and the south side forms the head of a small cove.

This island is nearly half a mile long, and is separated by a channel 200 yards wide, with $8\frac{1}{2}$ fathoms in it, from Merasheen island; it lies $1\frac{1}{2}$ miles southward of the Castle.

Temporary anchorage for small vessels may be had off the cove south of Butler island in 16 fathoms.

Little Butler island, 300 yards long, flat, wooded, and 80 feet high, is situated 800 yards southward of Butler island and 200 yards from the shore of Merasheen island. There is deep water within a few yards of it.

Dog harbor is entered 1,600 yards west of Little Butler island, and is formed by a curve in the coast of Merasheen island and Dog harbor

head, a remarkable wedge-shaped, wooded peninsula 245 feet high on the East side, with the apex near the north extreme.

The harbor is free from danger except some small shoals lying a few yards from the south shore; it is 950 yards long, 400 yards broad, and affords anchorage in 15 to 6 fathoms as convenient.

Water may be obtained from a brook in the southwest corner. Just inside the east point is the narrow neck 105 feet across to the reach between Merasheen and Ragged islands.

Merchant cove lies on the south side of the isthmus joining Dog harbor head to Merasheen island. The cove contains an islet nearly joined to it and 31 feet high. Sunken rocks fringe the shore for 100 yards.

There is no room here except for one or two small vessels northeast of the islet, and the cove is exposed to the southwest.

A bank extends southwest from Merchant point, the least depths on which are a shoal with 5 fathoms water on it, bearing SW. $\frac{3}{4}$ S., distant 500 yards, and another with $5\frac{1}{2}$ fathoms water, bearing S. by W. $\frac{1}{4}$ W., distant 400 yards from Merchant point.

Several banks lie in the bight between Merchant cove and Rosiru point, but none are dangerous, except a rock which dries one foot at low water and bears NNE., distant 600 yards from the northeast extreme of Rosiru point and nearly 400 yards from the shore of the bight.

Rosiru point is the extremity of a hill, 258 feet high, covered with stunted trees and faced by rugged cliffs of a reddish color. Rocks lie close to the foot of nearly all the cliffs.

Rosiru point turns to the westward in a bight 600 yards deep, terminating in a narrow creek. Small vessels anchor off this bight, but the point should be rounded at 200 yards distance to avoid the rock described above.

From this point the coast trends with a slight curve S. by W., for a distance of $1\frac{1}{2}$ miles to Rosiru, a small shallow cove sheltered by a low spit of rock. The point next south of Rosiru cove is the extreme of a wooded cone, separated by a valley from the main body of the hills. A rock awash at high water lies close to the south part of this point. The coast from this extends in nearly a straight line S. by W., for a distance of $2\frac{1}{2}$ miles to Indian harbor, falling steeply from wooded summits intersected by small valleys.

Rosiru island, $1\frac{1}{10}$ miles long and 700 yards greatest width, its separated from this shore by a clear channel nearly 200 yards wide at the narrowest part. It is surmounted by a remarkable dark-wooded cone 480 feet high. The greater part of the island is wooded, but near the north extreme are some bare sharp peaks. A wooded peninsula is almost disconnected from the south extreme and is terminated by some low rocks, but the whole coast may be approached to within 200 yards. A rock awash at high water lies close to the east extreme of

the middle of the island, and some rocks that cover lie close off a shingle beach at the north extreme.

Indian harbor, half a mile deep, is entered on either side of Southwest island, which is 187 feet high, bare at the summit, but elsewhere covered with small trees. Southwest cove, with a shingle beach at the head, lies close within Southwest head, and affords no shelter. The head of Indian harbor, which is shallow, affords excellent anchorage for fishing craft, and is sheltered by Brigades island, which is low and wooded. A rock lies 100 yards south of this island. The head over the north entrance point has a double summit, 473 feet high, covered with white moss, and a hill, similar in appearance but not so high, forms the south head. Both heads fall to seaward in dark cliffs.

The anchorage for vessels is very limited, as a shoal extends 134 yards from the south shore, just within Southwest island, leaving a clear space only 200 yards in diameter. The bottom being covered with long kelp appears to be shallow in many places, but there are no dangers except those before mentioned. The best passage is that north of Southwest island.

Darby harbor, an exposed cove, lies close south of Indian harbor. Two moss-covered hills, similar in appearance to the heads of Indian harbor, and 399 and 385 feet high, respectively, form the south side of Darby harbor.

Glun-a-beathaich, a small rock 3 feet above high water, lies nearly 200 yards from the coast, at $1\frac{1}{2}$ miles south of Indian harbor.

Coast.—The coast extends in a S. by W. direction $5\frac{1}{2}$ miles from Indian harbor to Red land, a remarkable slip in the cliffs of a more yellowish hue than the color of those in Red island. This distinction should prevent mistakes in identification. The coast is almost straight, the only indentation being Hogan cove, $1\frac{1}{2}$ miles north of Red land, which affords shelter for fishing boats from off-shore winds. Immediately south of Red land the coast of Merasheen island turns sharply to west.

Big sunken, with 2 feet water on it, lies 650 yards ESE. $\frac{1}{2}$ E. of this turning point.

Dirty rocks, 33 feet high, lie 400 yards off the coast, near the southeast extreme of Merasheen island. They consist of two prominent pinnacles, named, respectively, the blue and red rocks from their colors, and several smaller rocks joined at low water.

Dirty rock cove, an indentation a quarter of a mile deep, shallow and exposed, is situated half a mile northeast of Dirty rocks.

A group of rocks lies south of Dirty rocks that are said to break in bad weather.

Charlie rock, the shoalest, with 6 fathoms water, bears S. by W. $\frac{3}{4}$ W., distant $2\frac{1}{2}$ miles from Dirty rocks.

Little shoal, with 8 feet water on it, lies E. $\frac{1}{2}$ S., distant three-quarters of a mile, and Barrett rock, with $4\frac{1}{2}$ fathoms over it, lies SE. by E. $\frac{3}{4}$ E., distant $1\frac{1}{2}$ miles from Dirty rocks.

Big Bald head, a conical wooded mound 211 feet high, lies in the middle of the south side of Merasheen island and projects a short distance from the coast. A waterfall descends over the cliffs in the cove east of this head.

A shoal with $3\frac{1}{2}$ fathoms water on it lies W. $\frac{1}{4}$ N., distant 1,750 yards from the south extreme of Big Bald head and 450 yards from the shore.

Coast.—The south coast of Merasheen island falls in steep cliffs from long moss-covered slopes that extend from the background hills. These hills are massive; the highest attains an elevation of 936 feet, is flat-topped, and lies in the middle of the island at 3 miles from the south end. The island is 5 miles broad at this end.

Scrape cove head is conspicuous when seen from Placentia bay. It is darker in color than the background, and is a flat-topped cone 419 feet high, falling in steep dark cliffs to seaward. Long point, a flat islet 51 feet high, continues this head to the southward, and is terminated by Long point rock, small, conical, and 10 feet high, off which there is a shoal with 6 feet water on it, distant 134 yards.

Merasheen harbor, at the southwest extreme of Merasheen island, is a good anchorage for small vessels, but the entrance is only 200 yards wide, so that during and after a southwest gale a heavy sea prevents access till the swell subsides.

Pond head, a flat-topped peninsula 272 feet high, joined at the east extreme to Merasheen island by a narrow isthmus, forms the west side of Merasheen harbor. West head, a bare gray islet 58 feet high, forms the southwest extreme of Pond head, from which sunken rocks extend 300 yards. Red island seen open south of Long point rock and bearing ESE. leads south of these rocks. A deep cove lies north of West head, from the northern point of which rocks extend 250 yards. The church, a wooden building with a spire, stands on the isthmus joining Pond head to Merasheen island.

The northwest shore of Pond head is indented with a few small coves, but is clear of danger beyond 200 yards from the shore.

Cross point, east of the entrance to Merasheen harbor, is the south extreme of a round hill 99 feet high and covered with grass, from which rugged black points extend to the northward, westward, and southward, while to the eastward a low neck of shingle joins it to the land under Scrape cove head.

Merasheen harbor is divided into two parts by Soldier point, a narrow promontory 31 feet high, but the whole is so encumbered by rocks and

shoals that local knowledge is required to enable a stranger to enter for the first time.

Shoals.—The following shoals lie off the entrance to Merasheen harbor:

Cross point shoal, with 16 feet water on it, lies WSW., distant 700 yards from Long point rock. From this shoal a bank with irregular soundings extends nearly to Cross point.

Big shoal, with $4\frac{3}{4}$ fathoms on it, lies SW. by W., distant 1,050 yards from Long point rock. The church seen in the entrance to the harbor leads west of these shoals.

A series of shoals not dangerous in ordinary weather lies to the southward of those described above, but several of them break in bad weather and cause a confused sea in the approach to the harbor.

Burgeo ground, with 7 fathoms water over it, the shoalest of a group of three, occupying a space 600 yards long north and south, is situated SSW. $\frac{1}{4}$ W., distant 1,900 yards from the west entrance point of the harbor; Isaac rock, with 8 fathoms over it, lies SSW. $\frac{1}{4}$ W., distant $1\frac{1}{2}$ miles; and Inside rock, with 8 fathoms on it, bears S. $\frac{3}{4}$ W., distant $1\frac{1}{4}$ miles from Long point rock.

Pond head sunkeners lie 500 yards SW. by W. from the north side of Pond head, and nearly always show by breakers. The outer rock dries 2 feet at low water and is bold to the westward. The inner rock has 3 feet water on it, and is situated 100 yards SSE. of the outer rock.

Little Merasheen harbor is situated northeast of Pond head, and is separated by a narrow isthmus from the head of Merasheen harbor. It is 400 yards deep, narrow, and shallow, so that only two or three schooners can lie there, and it is quite exposed to the north. A large settlement surrounds this and Merasheen harbor.

Fish island, 14 feet high and steep-to, lies 134 yards NW. by N. of the east entrance point of Little Merasheen harbor.

The Friar.—A remarkable pinnacle, 120 feet high, lies close to the shore, at one mile northeast of Little Merasheen harbor.

Breakheart point lies $1\frac{1}{2}$ miles northeastward of Little Merasheen harbor, and is the extreme of a small projection surmounted by two conical wooded hills. The intervening coast falls in steep cliffs from a high range, the summit of which, 790 feet high, lies over the cove south of Breakheart point. Near the south extreme of this range is situated a deep valley that divides round Naked man, a conspicuous dark cone 577 feet high.

Two shoals with 13 feet water on them lie west of Breakheart point, the outer bearing W. $\frac{3}{4}$ S. from that point, distant 450 yards.

Merasheen and White-sail banks lie south of Merasheen island separated by a channel 2 miles wide from the shoals off Merasheen harbor. Northward rock of White-sail bank, with 7 fathoms water, lies SW., 4 miles nearly from Scrape cove head.

Telegraph rock, with 11 feet water, the shoalest rock on these banks, lies S. by W. $8\frac{3}{4}$ miles from Scrape cove head, and from it shoals with 5 to 8 fathoms extend to Upper Big shoal with 8 fathoms water, 1 mile within the southwest extreme of Merasheen bank and S. by W. $\frac{1}{4}$ W., 15 miles from Scrape cove head.

Bennett bank lies on the northeast extreme of Merasheen bank. This bank is $2\frac{1}{8}$ miles long and 1,700 yards within the depth of 30 fathoms, and the bottom is irregular over the whole bank.

Hollett rock, with $5\frac{3}{4}$ fathoms water on it, is the shoalest spot upon Bennett bank, and is situated just within the north edge of the bank and S. by E., distant 6 miles from Scrape cove head, on Merasheen island.

Joe ground, with $5\frac{3}{4}$ fathoms over it, is the shoalest part of White-sail bank, and lies SE. $\frac{3}{4}$ E., distant 4 miles from White-sail head.

Jeans rock, with 6 fathoms water, is separated by a narrow deep gully from the west side of White-sail bank, and bears SE. by S., distant $4\frac{1}{8}$ miles from Whitesail head.

Presque harbor is a basin 5 miles long and 1,200 yards wide, that would be valuable as an anchorage but for the number of shoals and dangers off the entrance, the consequent intricacy of the passage, and the great depth of water in the main part of the basin. The entrance is from the east side, and is situated nearly midway between the north and south extremities.

The following islands and shoals lie off the entrance:

Eastern sunker, which dries 1 foot at low water, lies 800 yards southwestward of Patrick island, and nearly always shows by a breaker. A shoal with 15 feet water on it lies nearly 200 yards northeast of this rock.

Eastern rock, 17 feet high, is small and barren, lying 1,200 yards southwest of Patrick island. It is steep to on the east side, but a chain of sunken rocks extends SW. $\frac{3}{4}$ S., for a distance of 267 yards from it; an isolated rock, with 9 feet water on it, lies WSW., distant 200 yards, and a shoal, with 33 fathoms on it, lies NW. $\frac{3}{4}$ W., distant 333 yards from Eastern rock.

Patrick shoals are a group lying east of Eastern rock. The shoalest part, with $6\frac{1}{2}$ fathoms water over it, is said to break in bad weather, and is situated E. $\frac{1}{2}$ S., distant 950 yards from Eastern rock.

Big island, 30 feet high, is a flat bare rock situated 400 yards westward of Eastern rock. It is steep-to on the east and north sides, but from the south extreme a bank extends SSW. 400 yards, with $3\frac{1}{4}$ fathoms water at its western extremity.

Big island shoal, with 4 fathoms on it, is a small rock situated 150 yards east of Big island.

Coast.—The north shore of the entrance to Presque is rugged and rocky, faced by black cliffs and encumbered with small rocks lying close to the shore. This side of the entrance may be easily recognized by Patrick lookout, a sharp peak, 627 feet high, that falls steeply to the shore over Long point. Mansfield rock, with 7 feet water on it, is the outer of the shoals lying off the north shore, and is situated 200 yards from Mansfield point, whence the coast bends into Presque.

Two deep coves lie close northeast of Mansfield point, the inner being known as Oven cove from a cave at the head, just within which is situated a deep hollow in the hills, named the Kneading trough.

Goat island is situated on the northern side of the entrance to Presque, and is separated by a clear channel 67 yards wide from the northern shore. It is covered with moss, has a flat summit surmounted by a small tuft 108 feet above high water, and falls in black cliffs to the sea.

Little Goat islands are two square islands and a small rock lying close south of Goat island, with shoal water extending a short distance in the same line to the southward. Southwest of these islands is situated a cluster of rocks extending a quarter of a mile, the southwestern of which has 9 feet water on it and is situated close west of a rock that dries at low water.

Goat island sunken dries 6 feet at low water, is situated 200 yards from the southwest side of Goat island, and is steep-to on the southwest side.

Harbor rock, lying 550 yards southwestward of Little Goat islands, is the western turning point into Presque; it is 11 feet high, small and flat. A sunken rock lies a few yards east of Harbor rock.

Coppaleen rock, 5 feet above high water, lies 600 yards southeast of Harbor rock, and is connected by a reef to the mainland, from which it is nearly 200 yards distant.

Coast.—The coast southwest of Coppaleen rock is bordered by rocks that extend a short distance from the shore, and is faced by steep cliffs that fall from conical hills covered with moss, which attain an elevation of 305 feet immediately over Harbor rock, the highest being 423 feet above high water.

Coppaleen shoal, with 13 feet water on it, lies S., distant 650 yards from Coppaleen rock, and N. $\frac{1}{4}$ E., distant 467 yards from the eastern of Western rocks. The two Western rocks in line and bearing SSW. $\frac{1}{4}$ W. lead east of this shoal.

Western rocks are two bare islets 13 and 12 feet high and 200 yards apart, the northern of which lies SW. $\frac{1}{4}$ W., distant 800 yards from Big island. From the west extremes of both islets shoal water extends nearly 200 yards; there is consequently no passage between them, but they are steep-to on the east side.

Ann and Greens coves lie on the east side of the northern arm of Presque, 600 yards within Goat island. Ann cove is shallow, and rocks lie off the dividing point between the coves. Greens island, low and grassy, with a small rock that covers lying close to the south extreme, is connected at low water to the north entrance point of Greens cove. The latter affords shelter for small schooners in 5 fathoms with good holding-ground, the only danger being a rock lying close inside the point separating Ann and Greens coves.

Rock.—A rock with 5 feet water on it lies N. by E. $\frac{1}{4}$ E., distant 250 yards from Goat island.

The eastern shore of Presque extends in almost a straight line from Greens cove to the head of the eastern arm, and is faced by low cliffs that fall from a nearly level ridge, the summits of which are 309 and 350 feet high. At the head is situated a beach fronting a low isthmus that connects the eastern promontory forming the east side of Presque with the mainland. A conspicuous two-storied dwelling stands just within the beach, and the Roman Catholic church is situated about half-way across the isthmus, but is not visible from Presque. A shoal extends 134 yards from the north point of the beach.

High look-out, a round hill 781 feet high, lies close southeast of the beach. This, with Patrick look-out and White-sail head, forms three conspicuous marks of identification for Presque.

St. Kyrans, a good harbor for small vessels, 800 yards long and 250 yards broad, is entered from the west side of the head of the eastern arm of Presque. A bar, with 6 fathoms water on it, crosses the entrance, but the water deepens within to 11 fathoms. Shoal ground extends a short distance from the northern point of the entrance, but there is no other danger.

Anchorage.—Anchorage for large vessels may be had in 25 fathoms off the conspicuous house at the head of the northern arm of Presque, and small vessels will find perfect shelter in St. Kyrans harbor with from 11 to 7 fathoms, mud, good holding-ground.

Coast.—The west shore of Presque falls steeply from moss-covered hills with wooded slopes. A remarkable peak situated south of St.

Kyrans harbor is 431 feet high, but farther south the hills attain an elevation of 649 feet.

Cobbler rock, which covers, lies a short distance off the west shore, half a mile south of St. Kyrans, and is the only danger.

Bachelor cove, a small indentation with a shingle beach, lies a little farther south, and Murphy cove, a good boat anchorage, 500 yards deep, is entered at $\frac{1}{10}$ miles south of St. Kyrans.

Northwest cove fronts the entrance to Presque; it is 400 yards long, 200 yards broad, and is entered through a passage 134 yards wide. Anchorage may be obtained here by a few schooners in 5 fathoms water, but the holding-ground is bad. Several rocks lie off the north shore and contract the anchorage space, but the south and west shores are clear. A small wooden Roman Catholic church, with a spire, is built on the east shore, but is not visible until within the cove.

Southwest beach is situated at the head of the southern arm of Presque. Shoal water extends nearly 200 yards from the head, but anchorage may be had in 15 to 17 fathoms.

Jigging cove, square in shape and 400 yards deep, indents the east shore close northeast of Southwest beach, but the water is too deep for anchorage, and a rock with 6 feet water lies close off the east entrance point.

Back cove, lying north of Jigging cove, is small. There is a rock in the middle, and a few houses line the shores. From this to Harbor rock the coast is nearly straight and may be approached to within 200 yards.

Shoal.—A small shoal, with 3 fathoms water on it, lies in the middle of the southern arm of Presque, and is the summit of a rocky bank 200 yards long within the depth of 10 fathoms. The north extreme of Little Goat islands seen east of Harbor rock, and bearing NE. by E. $\frac{3}{4}$ E., leads east, and the round summit of Gull island seen quite open north of the land of Whitesail head, bearing SW. $\frac{3}{4}$ S., leads north of this shoal.

A population of 318 persons resides in the various coves in Presque.

Tasse l'argent (Tostello) is a shallow harbor, entered 600 yards southwest of Western rocks. The south entrance point is marked by a round hill 220 feet high, off which lies a low rock that may be approached to 100 yards. The harbor is 400 yards long, forming a gentle curve to the westward; it is 150 yards wide, and is entered through a narrow channel 67 yards broad. A small shoal lies a few yards off the north side of the entrance. This harbor is available only for small craft, and is at all times difficult of access, from baffling winds, and in bad weather from the heavy sea that makes in the entrance, in which there is only a depth of 2 fathoms at low water.

The coast from Tasse l'argent to Eastern head is extremely rugged, with low rocks lying off many of the points and shoals extending some distance from the shore.

White sail, a conspicuous white patch in the cliffs, lies three-quarters of a mile south of Tasse l'argent, on the slope of a sharp peaked hill 460 feet high.

White-sail head, a remarkable sharp peak 615 feet high, is situated half a mile south of White-sail, and falls almost perpendicularly to the sea.

Lather sunken, with 15 feet water on it, lies ENE. $\frac{3}{4}$ E., distant 1,400 yards, and Garden ground, with 16 feet water over it, bears ENE. $\frac{1}{2}$ E., distant 1,650 yards, from White-sail head.

A rock that dries 2 feet lies 200 yards south of the point east of White-sail head, and Anchor cove sunken (a ledge 400 yards long with 5 feet least water on it) extend 400 yards from the shore below that head.

Butter cove, rugged and exposed, lies southwest of White-sail head. Butter cove rock, 6 feet high, is situated 250 yards southeast of the mouth of the cove, and is steep to on the outer sides; but a rock, with 2 feet water on it, lies midway between it and the north entrance point of Butter cove.

Eastern head, situated $1\frac{1}{6}$ miles southwest of White-sail head, is a clifty, narrow promontory, forming the west extreme of the peninsula that forms the south side of the southern arm of Presque, and terminating in a peaked rock, off which shoal water extends nearly 200 yards, and which should be given a good berth when rounding it.

Duck rock shoal, with 4 fathoms water on it, lies 300 yards off shore and 350 yards northeast of Eastern head.

Directions.—Presque harbor is difficult of approach by a stranger for the first time, but by attending to the following directions a vessel may safely enter. Care should, however, always be taken to prepare for the squalls that descend with great violence from the hills and through the valleys in the neighborhood when high winds prevail.

There are two passages; the better is that close east of Western rocks; the other, to the eastward of Big island, is not available in bad weather.

From the northward.—White-sail head should be kept well open southeast of Big island, and when nearing the entrance to Presque Grandy point rock should be kept open east of Long point until Harbor rock is just touching Big island, when the east extreme of the latter may be steered for and rounded at a distance of only a few yards. A straight course should then be steered to pass northeast of Harbor rock, distant 100 yards, and when this rock is reached vessels may steer for

any of the harbors within Presque by attending to the clearing marks given for the few off-lying shoals.

From the southward.—The summit of Marticot island, bearing SW. by W. $\frac{1}{4}$ W. and kept open east of Eastern head, leads clear of all danger in ordinary weather, and when Goat island is open north of Western rocks the latter may be run for and passed at 100 yards distance. The two Western rocks must then be kept in line until Harbor rock is open north of Coppaleen rock, when a course may be steered to pass 200 yards northeast of Coppaleen rock and 100 yards northeast of Harbor rock.

To pass through the channel between Goat island and the main.—Having passed 200 yards northeast of Western rocks, a course may be steered direct for this channel, which will be passed through in safety by keeping in the middle.

Banks.—The whole coast from Grandy point to Eastern head is skirted by fishing banks that extend three-quarters of a mile from the shore and vary in depth from 6 to 18 fathoms. Though not dangerous in ordinary weather, yet in heavy gales these inequalities of the ground produce a heavy, confused sea. Vessels should therefore not approach this coast nearer than a mile in bad weather unless bound for Presque.

Black rock, bearing S. $\frac{1}{2}$ W., distant 1,650 yards from Eastern head, is 23 feet above high water, small, bare, and steep-to. A rock, with 6 feet water on it, lies WSW., distant 600 yards from it.

Heptidge rock, with $4\frac{1}{2}$ fathoms over it, is situated SW. by W. $\frac{1}{4}$ W., distant three quarters of a mile from Black rock. The Nest, with 6 fathoms on it, lies ESE., distant 400 yards, nearly, from Shooting rock.

Gull islands, a group of conical rocks covered with grass, the highest of which is 156 feet above high water, lie 1,350 yards southwestward of Eastern head. The southeast and southwest sides of the group have no dangers near them, but from the northeast extreme shoal water extends nearly 200 yards. Shooting rock, the southern islet, is bare, 10 feet above high water, and steep-to.

A small cove, with rugged cliffs round it, lies northwest of Eastern head, the northwest extreme of which, Watering cove point, is situated 700 yards from Eastern head and is rugged and foul. The coast north of this point is faced by cliff, and foul for 200 yards from the shore as far as Long beach, a shingle strand fronting the isthmus that joins the peninsula of White-sail head to the mainland. On this isthmus are situated two ponds, that nearly connect the head of southern arm of Presque with the cove south of Long beach. A shoal, with 6 fathoms water on it, lies off Long beach, and 200 yards southeast of Beach head.

Beach head, a conical promontory 252 feet high, is situated west of Long beach, and divides it from Great Bonah cove.

Great Bonah cove is 1,100 yards deep and 400 yards in average width. The settlement is situated round a small cove on the eastern

shore north of Beach head. The east entrance point of this cove is foul for 200 yards. Temporary anchorage may be had, with shelter in all winds but those from SE. to W. by S., for small vessels off Great Bonah in 11 fathoms, or by large vessels at 400 yards from Beach head in 11 to 13 fathoms.

Coast.—The coast from Great to Little Bonah cove is of steep cliff and may be approached to within 100 yards. Mother Blanche, a white pinnacle, lies close to the shore at 600 yards northeast of Little Bonah, and 400 yards farther northeast is situated Grip nest, a gray landslip in the coast hills.

A shoal, with 6 fathoms water on it, lies ESE., distant 650 yards from the south entrance point to Little Bonah cove.

Little Bonah cove lies nearly a mile northeast of Little Paradise harbor and $1\frac{2}{3}$ miles southwest of Great Bonah cove. Off the south point of entrance (which is 300 yards wide) is situated a low rock, with shoal water extending a short distance from it. The north entrance point is marked by Whale's back, a rock that just covers at high water, but is generally shown by a breaker. The shores of Little Bonah cove are foul for a short distance.

A rock, with 11 feet water on it, lies just within the entrance, and 100 yards from a bare rock on the eastern shore. A shoal, 13 feet water on it, is situated 100 yards from Damages point, a projection on the same shore, situated 300 yards within the entrance.

A few houses are built round a small, shallow inlet on the west shore at 650 yards from the entrance, where fishing boats find good shelter. The head is divided into two coves by a small point, off which a rock, with 3 feet water on it, lies 100 yards distant. The western cove is deep, but the eastern is filled with rocks that uncover at low water.

Water may be procured in abundance from a stream flowing into the eastern cove, that drains a chain of ponds extending to Southeast cove, in Paradise sound.

Coast.—The coast between Little Bonah cove and Little Paradise harbor is of bold cliff, surmounted by peaked summits covered with moss, that attain an elevation of 299 feet.

Marticot island, $1\frac{1}{2}$ miles long and a mile wide, lies off the southwest angle of the mainland, which from this trends sharply to northwest. It consists of two parts, joined by a low marshy isthmus. Both portions are high, with barren summits and wooded valleys, the highest hill, 377 feet above high water, being situated on the western part, and falling steeply to the isthmus. Gull rock, 18 feet high, the southeast extreme of the island, is the termination of a cluster of cliffy islets. Marticot Back cove, on the south side of the isthmus, is 850 yards deep,

with sides of steep cliff, and is quite exposed, with rocks off both entrance points for a short distance.

The west extreme of the island is a narrow peninsula, with a conical summit about 200 feet high, and the north shore may be approached to a short distance. Close off the north extreme are some low rocks, with a shoal over white bottom lying a short distance off them. Marticot cove, north of the isthmus, has a shingle beach at the head and is foul for a short distance from the shores, but anchorage may be had, with shelter from southerly winds, in 8 fathoms. Rocks extend a short distance from the east point, and a shoal, with 5 fathoms water, lies NE. by E. $\frac{3}{4}$ E. 400 yards from them. The following shoals lie off Marticot island; the bearings and distances given are from Gull rock: Gull shoal, with 13 feet water, S. $\frac{1}{4}$ E., a quarter of a mile; Fortune-bay-man rock, with 5 fathoms, E. by N., half a mile; Roof-of-the-house, with $3\frac{1}{2}$ fathoms, NE. $\frac{1}{2}$ E., $\frac{1}{4}$ of a mile; Long rock, with 5 fathoms, E. by S., half a mile; the Point, with 6 fathoms water, SE., $\frac{3}{4}$ of a mile; Plantation rock, with 7 fathoms, WSW. $\frac{1}{4}$ W., $1\frac{1}{2}$ miles; a shoal, with 5 fathoms, SW. by W. $\frac{3}{4}$ W., $1\frac{3}{4}$ miles; Middle shoal, with 6 fathoms, SW. by W., $1\frac{3}{8}$ miles; Larkin shoal, with 5 fathoms, W. by S., 2 miles; and Bill White rock, with 4 fathoms, WSW. $\frac{3}{4}$ W., $2\frac{1}{2}$ miles. Horney rock, with 6 fathoms, lies 200 yards from the southeast point of Marticot island.

Little Paradise, a harbor 800 yards long, is entered through a channel 100 yards wide, between a steep cliff falling from a hill 208 feet high on the west side, and Harbor rock, a bare islet, 10 feet above high water, to the eastward. Shoal water extends a short distance from both sides of the entrance, and only 5 fathoms can be carried through at low water, though the depth increases to 17 fathoms immediately after the bar is crossed. The east shore forms a gentle curve, but on the west side a narrow promontory 300 yards long forms two coves. This promontory is continued under water a short distance from the high-water line. The anchorage is in the northern of the two coves, in a space 300 yards in diameter, with 9 fathoms water and good holding-ground. A few families reside here.

Water may be procured from a small stream that discharges over a shingle beach in the northeast corner of the harbor.

A rock, awash at low water, lies a short distance S. $\frac{3}{4}$ E. from Harbor rock, and Pig ledge, with $5\frac{3}{4}$ fathoms water on it, is situated E. by S., distant 400 yards from the same rock.

Kirsay, a peaked rock, lies close to the shore, about half-way between Little Paradise and Paradise harbors.

Paradise harbor is a good boat anchorage, sheltered by a large island, but nearly filled by rocks, bold-to on the outside. A large house is built on the island, and there is a considerable settlement round the harbor, containing 140 persons. From the west point of this harbor, on which

there is a graveyard, the coast turns suddenly northeast to Paradise sound.

Lakes gut is a narrow passage used when entering Paradise harbor from the southwestward by small craft drawing less than 12 feet water, but it should not be taken without local knowledge. Entering from the southwestward, the rock off the point of the graveyard must be kept close-to, and then a sudden sheer made to the southward for the summit of Marticot island.

Anchorage for large vessels may be had off Paradise harbor in 11 fathoms, with shelter from all but easterly winds. Marticot island is, however, nearly connected to the mainland by banks, with 6 to $8\frac{1}{2}$ fathoms water, extending from the west entrance point of Marticot cove.

Fox island is situated northwest of Marticot island, leaving a passage between, 250 yards wide. A rock, with 12 feet water, lies off the southwest part of the entrance to this channel, SW. $\frac{1}{4}$ S. 300 yards from the south extreme of Fox island. The largest house in Paradise, seen well open south of Fox island, leads south of this danger. Fox island is 240 feet high and a third of a mile long, has a flat, barren summit, falling steeply to north and south, and is almost joined to the west point of Paradise at low water.

A rock, that breaks in ordinary weather, lies NW. $\frac{1}{2}$ W. 1,070 yards from the west extreme of Fox island, and is continued west 200 yards by a shoal with 10 feet water.

The coast from Paradise trends NNW. half a mile to Red cove, an indentation 800 yards deep and 400 yards wide, open and exposed. Red cove head, the west point, is skirted by rocks off reddish cliffs, and this shore is foul till Southeast cove is reached.

Long island, situated $1\frac{1}{6}$ miles west of Marticot island, is 4 miles long and three-quarters of a mile wide at the broadest part, near the southwest end, gradually narrowing to a sharp point at the northeast extreme. The shores are bold to a short distance off, and are surmounted by a series of peaks, the highest, a sharp cone 472 feet high, falling steeply to the north shore about a third of the length from the southwest extreme. Some low black rocks lie off the east side.

Long island bank lies nearly a mile southeast of Long island. It is $1\frac{3}{4}$ miles long and $1\frac{1}{2}$ miles broad within the depth of 30 fathoms.

The shoalest parts are two places with 10 fathoms water, situated E. 2 miles and $2\frac{3}{8}$ miles, respectively, from the southwest extreme of Long island.

A shoal, with 8 fathoms water on it, lies SE. $\frac{1}{2}$ S., distant $3\frac{3}{4}$ miles from the southwest extreme of Long island.

Paradise sound is entered 2 miles northwest of Marticot island, and extends 14 miles in a northeasterly direction; it is about three-quarters

of a mile wide, and has deep water generally. There is anchorage for small vessels in Southeast cove, the first indentation on the southeast shore, where are a few houses, in Gilbert's cove, on the northwest shore, opposite the first island, and at the head. The only danger is a rock a short distance northeast of the first island and out of the direct course up the sound.

Shag rocks, a group of peaked rocks, the highest 4 feet above high water, lie just west of the entrance to Paradise sound. The easternmost of the group covers at high water, and faces a deep cove. There is no passage between these rocks and the shore.

A shoal, with 8 feet water, lies SSE. $\frac{1}{4}$ E., 300 yards from the highest rock.

Petit Fort harbor, next west of Paradise sound, is entered through a passage 400 yards wide between Eastern head, a sharp point on the east side, and White point, low and shelving, with small rocks a short distance off. The harbor extends N. by E. $1\frac{1}{4}$ miles, with several coves, expanding to half a mile in breadth inside the entrance, and thence narrowing gradually to the head.

A shoal, with 12 feet water, lies immediately within the entrance, nearly in mid-channel, and is steep-to. Two wooded islets, about 20 feet high, lie close to the west shore, and nearly join each other and the mainland at low water. Petit Fort, a small cove on the west shore, is formed by a peninsula surmounted by a round wooded hill about 90 feet high. On the neck joining this peninsula to the mainland stands the church, a white wooden building, off which, connected to the mainland at low water, lies a cliffy islet 20 feet high. A settlement surrounds this cove. Harrington cove, next south of Petit Fort, has a few houses round the shores, and a small islet, 13 feet high, off the south point. Petit Fort harbor is surrounded by high hills, those on the east shore being a series of sharp peaks 375 to 272 feet high, with deep valleys between, and on the west shore a wooded flat range 450 feet high, faced by cliffs, and falling almost perpendicularly to the water line.

Anchorage may be had as convenient after the shoal in the entrance is passed, in from 10 to 5 fathoms, mud. Small vessels should proceed north of the wooded islets, where they will find security from all winds. Wild cove, immediately southwest of the entrance, is open and exposed.

Nonsuch head, a steep bluff under a round wooded summit 252 feet high, is the dividing point between Petit Fort harbor and Nonsuch, and is situated S. by W. $\frac{3}{4}$ W. 1,600 yards from the entrance to the former. A detached rocky hummock, 30 feet high, lies on the south side, and off the west extreme of the head are some low square rocks. Two small open coves lie on the west side of this head.

Shag islets, 16 feet high, lie close off the northwest extreme of Nonsuch head. A rock that covers 6 feet lies S. by W. $\frac{1}{4}$ W. 100 yards, and a ledge extends the same distance NNW. $\frac{3}{4}$ W. from them.

Nonsuch extends $1\frac{1}{2}$ miles in a northeast direction from these islets, to the narrows between the south shore and the north Burnt island, 140 yards wide. A shoal, with $5\frac{1}{2}$ fathoms water, lies nearly in the middle of the entrance, WNW. 750 yards from Shag islets, and a rock, on which there is 6 feet water, lies in mid-channel, NW. $\frac{3}{4}$ N. 1,100 yards from Shag islets; a shoal, with 15 feet water, lies SSW. $\frac{3}{4}$ W. 650 yards from Gooseberry island. The east point of the narrows, shut in with Gooseberry island N., leads east of these shoals.

Gooseberry island, 53 feet high, a small cliffy mound, forms a good mark of recognition for Nonsuch narrows. A cove, 1,400 yards deep and 700 yards wide at the entrance, narrowing gradually to the head, extends northeast from Gooseberry island, and affords good anchorage in 9 to $6\frac{1}{2}$ fathoms, sand and mud, with shelter from all winds but those from SW. to S.

Burnt islands form the west side of the entrance to Nonsuch and the east side of Southwest Nonsuch. They are both nearly joined to each other and the mainland of cape Roger, and are $1\frac{1}{2}$ miles long. The southern island is surmounted by a barren cone, cleft in two. The higher part, 285 feet above high water, is continued to the southward by wooded hills. The east shore is foul for 200 yards. An inlet, 600 yards deep and 100 yards wide, is entered on the south side of this island, and affords shelter for fishing-boats, but is barred at a short distance from the entrance by a shoal, with 4 feet on it at low water. A few houses are built on the shores of this inlet.

The northern island is barren, 165 feet high, and has a small, nearly detached mound on the east side, off which rocks that cover 5 feet extend 100 yards into the narrow entrance of Nonsuch, leaving a channel only 100 yards wide, through which $8\frac{1}{2}$ fathoms can be carried by keeping the east shore close on board.

Northeast Nonsuch extends from the narrows NNE. $\frac{1}{4}$ E. $2\frac{3}{4}$ miles, with an average breadth of 400 yards, expanding in a cove on the west shore about a mile within the entrance, off which anchorage may be had in 7 fathoms for vessels of moderate length. Small vessels may anchor as convenient till within a quarter of a mile of the head.

Water may be procured from several streams in this harbor, and small firewood from the valleys.

Southwest Nonsuch extends SSW. $\frac{1}{4}$ W. 2 miles from the northern Burnt island, and is unfit for vessels drawing more than 12 feet water; it may be entered by keeping mid-channel between Burnt islands and the mainland. South of the narrows a fine basin opens out, half a mile

long and a third of a mile wide, with perfect shelter in 11 to 12 fathoms, mud. Two islands lie in this basin, and the head narrows to a shallow creek 600 yards deep.

Mouse island, 17 feet high, is a small grassy rock 150 yards from the south extreme of Burnt islands, with a reef extending 200 yards from the south extreme. A rock that covers 4 feet lies E. by N. 150 yards, and a shoal, with 7 feet water, SE. by E. $\frac{3}{4}$ E. the same distance from Mouse island.

Anchorage for small vessels may be had in 6 fathoms northwest of Mouse island; but they must pass over a bar, with $3\frac{1}{2}$ fathoms water, between that island and the mainland.

Woody island, about 700 yards in length and the same in breadth, lies S. a quarter of a mile from Burnt islands, and is separated from the mainland by a deep, clear channel 300 yards wide. It is surmounted by three wooded hummocks; the highest, over the south side, being 228 feet high, slopes steeply to the water line, and may be approached to within 100 yards.

Hay island, about 800 yards long, and narrow, is surmounted by a wooded cone 100 feet high, and is joined to the mainland by shoal water. A low black rock lies close off the southwest extreme, and another southeast of the northeast end but the east shore is bold-to.

Cape Roger is a steep cliff about 150 feet high, with a low black rock close to the foot, the termination of a remarkable moss-covered headland 500 feet high, situated northwest of Hay island, and falling almost in a perpendicular line to the sea. The east coast of this cape may be approached close-to, but the west shore has shoal water a short distance from it.

Cape Roger island, 800 yards long, lies 1,750 yards westward of cape Roger, and is wooded with dark trees, the summit, 220 feet high, falling in steep black cliffs to the southwest extreme. Shingle beaches fringe the northeast shore, and several rocks lie off the north and west shores, 200 yards distant.

A rock, with 7 feet water, lies ENE. 450 yards, and another head of the same bank, with 12 feet water, lies NE. by E. $\frac{1}{2}$ E. 600 yards from the rock at the southeast point of Cape Roger island. A rock, with 8 feet water, lies SE. $\frac{1}{2}$ S. 300 yards from the south point of cape Roger island.

Cape Roger bay extends in nearly a straight line N. by E. 4 miles from cape Roger, and is nearly a mile wide at the entrance, narrowing to 600 yards at a mile within, and to 350 yards at a short distance farther, keeping that breadth to near the head. A cluster of islets lies just within the entrance, 250 yards from the east shore, the southern, a pinnacle 10 feet high, and the northern, flat, 6 feet above high water.

Sunken rocks lie 200 yards off these islets, and the channel between them and the main should not be taken.

Cape Roger mountain, a conspicuous round hill, lies $9\frac{1}{2}$ miles inland from Cape Roger, is 1,220 feet high, and shows prominently over the intervening land from the banks in Placentia bay.

Cape Roger harbor, situated on the west shore $1\frac{1}{2}$ miles within the entrance, is sheltered by Harbor island, wooded, 113 feet high and 400 yards long, separated at the south end from the mainland by a narrow channel, through which 4 feet can be carried at low water. This harbor affords anchorage for small craft only, between the island and the mainland, in 2 fathoms, sand, but large vessels may find anchorage anywhere in the bay after the island is passed, in from 10 to 4 fathoms, mud, as convenient. Rocks extend off the point next south of Harbor island, in a line crossing the bay, and that part of the west shore should not be approached nearer than 200 yards, but the island may be closed to within 100 yards from the east point. Rocks that cover lie close southwest of Harbor island, in the harbor. A conspicuous round hill, 470 feet high, lies on the east shore, separated by a marsh from the hills of Cape Roger, and shows out well from south.

Cape Roger head, marking the west side of the entrance, is 498 feet high, and falls steeply to the bay, but in wooded slopes to the northwestward, and in a succession of wooded hills to the southwest point of the bay, a rugged cliffy point under a wooded hillock, off which rocks that cover extend 200 yards.

A swell rolls across the entrance of this bay even when it is calm outside, especially after a prevalence of southerly winds.

Water may be procured in many places, and small wood is abundant in the valleys off this bay.

Little Gallows harbor extends from the west point of Cape Roger bay N. $\frac{1}{2}$ E. nearly a mile, to a shingle spit, within which it branches off east and west, forming a basin 700 yards long and 150 yards wide. The harbor is 700 yards wide at the entrance, narrowing to 200 yards off a peaked rock on the west shore 1,200 yards within, and thence gradually to the shingle spit. Shoal water extends a short distance from both shores, and across the head, just outside the shingle spit, is a bar with 4 feet water on it.

Anchorage for small vessels may be had in from 8 to 5 fathoms, as convenient, with shelter from all winds but those from southwestward, the water shoaling suddenly from 17 to 8 fathoms off the first low neck on the west shore, and from there gradually to the bar. A few houses are built round the head.

Gallows harbor head separates Little and Great Gallows harbors, and is disconnected from the mainland at high water by Pushthrough,

a passage just wide enough for a boat. This head, surmounted by mossy hills 320 feet high, falls in sharp cliffs to southward, but in wooded slopes to the northward, the two northern hills being connected to each other and the highest part by two low necks of land covered with grass.

Great Gallows or Saint Joseph harbor is entered between a low point surrounded by bowlders, close off which is a black rock that covers at high water, and Sam's head on the west side, a narrow point sloping from a steep bluff.

A bank, with 7 feet least water, lies SW. by W. $\frac{1}{4}$ W. 500 yards from Sam's head. The harbor is 500 yards in diameter, and affords good anchorage in $7\frac{1}{2}$ fathoms, mud. A few houses line the shores.

Gallows harbor island, about half a mile long, lies $\frac{1}{2}$ mile westward of the head of that name, and has a wooded summit 257 feet high. The water is deep to within a short distance of the shores.

Jigging cove, entered 600 yards north of Sam's head, extends 600 yards in a northeasterly direction. The entrance is 200 yards wide, and the cove expands within to 300 yards in breadth. A rock, with 7 feet water, lies a short distance from the west point of the entrance. Small craft find good shelter in 5 fathoms, mud.

Mouse island, 35 feet high, and covered with grass over black rock, lies between Gallows harbor island and the mainland north of it, leaving a clear passage 400 yards wide between the islands, but none between it and the mainland. Low rocks continue the island to the northward.

Steering rocks, 14 feet high, lie close to the shore off a slight indentation north of Mouse island. A rock, with 5 feet water, lies E. $\frac{1}{4}$ S. 300 yards from the highest of the steering rocks.

Little harbor, $1\frac{1}{4}$ miles southwest of Great Gallows harbor, extends N. 1,200 yards, is generally 200 yards wide, but is narrowed at a short distance within the entrance by a rock off a shingle point. Fishing craft find shelter here in $1\frac{1}{2}$ fathoms, off a small settlement. The west point is a group of low islets, the westernmost 13 feet high and steep-to.

Burnt island, half a mile west of Little harbor, lies close off the mainland, and shelters a small cove frequented by fishing boats. The coast between Little harbor and this cove is rugged and much indented. A shoal lies just east of the island, a short distance from the mainland, but the island is bold-to on the south and west sides.

Holloway passage, between Burnt and Cross islands, is 500 yards wide, clear of danger, and deep.

Baie de l'Eau head, immediately north of Burnt island, slopes steeply from an isolated hill 227 feet high, covered with moss, and is bold-to.

Baie de l'Eau extends NNE., with a slight bend, nearly 4 miles, and has a nearly uniform breadth of 900 yards; the shores slope steeply from wooded hills 350 to 550 feet high. The water is deep, and there is no danger for 2 miles from the entrance, when the water shoals suddenly from 28 to $7\frac{1}{2}$ fathoms in mid-channel. A depth of 7 to 6 fathoms continues for three-quarters of a mile, when the water shoals quickly to 3 fathoms at a distance of $1\frac{1}{6}$ miles from the head, and 800 yards within this dries at low water. Anchorage may be taken up on the plateau in 6 or 7 fathoms, mud, with perfect shelter.

Water and wood can be procured readily from many places on the shores of this bay.

Cross island, $2\frac{1}{2}$ miles long northeast and southwest, and $1\frac{1}{4}$ miles broad, is surmounted by two conspicuous hills, covered with moss. The highest and northern has a small, flat summit 593 feet high, and the southern is a sharp peak 550 feet above high water. Lower, rugged, and wooded hills, with deep valleys between, extend to the shores, sloping steeply to the water line. Rocks that cover lie off the southeast shore that should not be approached nearer than 200 yards, and shoal water extends a short distance from the points on the northwest side. A shoal, with 6 fathoms water, lies S. by W. $\frac{1}{4}$ W. half a mile from the southwest point, and a rock, with 5 fathoms water, lies 200 yards off the northwest shore, opposite the channel between Petticoat and Gull islands.

Gooseberry island, 34 feet high, the north extreme of a chain of islands west of Cross island, is a small cliffy islet with shoal water extending a short distance to the northeastward, and a rock, with 5 feet water, SSW. $\frac{1}{4}$ W. 150 yards from it, the extreme of a ledge stretching in that direction.

Petticoat island is separated from the south extreme of Gooseberry island by a passage 400 yards wide, clear in mid-channel. It is wooded over three round summits, the highest 182 feet above high water. A rock, with 7 feet water, lies 200 yards off a cove at the northeast extreme, and shoal water extends a short distance off the north shore.

Gull island is situated 450 yards southwest of Petticoat island, and the channel between is clear of danger. The highest part, a wooded cone 210 feet above high water, lies near the northeast extreme, the southeast shore has dark cliffs and is steep-to, and the northwest shore consists of shingle beaches at the base of gentle slopes.

Little Gull island, a grass-covered rock 30 feet high, is nearly joined to the southwest extreme of Gull island.

Jerseyman island, 257 feet high, is flat in outline and wooded, falling steeply to the shore, and terminated to the northward by a small islet 7 feet above high water. A rock, on which there is 6 feet water,

lies south 200 yards from the south extreme. The passage between Jerseyman island and the mainland is clear, the distance to Broad Cove head being 1 mile, SW. by W. $\frac{1}{4}$ W.

Boat harbor head, dividing Baie de l'Eau from Boat harbor, falls in steep bluffs from a moss-covered table-land 400 feet high, and is fringed on the west side by shingle beaches.

The Friar, a peaked rock, 11 feet high, lies close off the extreme of this head and is steep-to.

Boat harbor extends N. by E. $\frac{1}{4}$ E. $3\frac{1}{2}$ miles from Boat harbor head with a nearly uniform breadth of half a mile, and divides at the head into northeast and northwest arms, the former 900 yards deep, containing anchorage for small vessels, but shoal 600 yards from the head.

Northwest arm is 1,400 yards deep and 500 yards wide, affording anchorage in 18 fathoms, but is shoal 400 yards from the head.

Parker cove, just inside the entrance on the west shore, is 600 yards deep. A rock, that covers 5 feet, lies in the middle of the cove 250 yards from the shore, and a shoal, with 9 feet water, lies in the line of the points 950 yards from Manny point south of the entrance.

Anchorage for ships can be had only in northwest arm, and for fishing craft in northeast arm and Parker cove, inside the rocks.

Water may be obtained from several streamlets on the sides of this bay.

A Shoal, with 9 fathoms water, lies WSW. $\frac{3}{4}$ of a mile from Boat harbor head. It is the summit of a bank, with less than 20 fathoms water, nearly half a mile in extent.

The coast from Boat harbor trends SW. by S. $2\frac{1}{4}$ miles to Bane harbor, is backed by wooded ranges with several sharp barren peaks 470 to 616 feet high, and is bold-to. Bane harbor telt, the southern of these hills, is sharp and 585 feet high.

Bane harbor, a landlocked basin 700 yards long and 500 yards broad, is entered through a curved channel 100 yards wide, narrowed to half that breadth by rocks extending from the north shore. The entrance is well defined by white houses, and the church—a white wooden building on a small eminence just within the entrance on the north shore. Rodway point, east of the entrance, is a low wooded mound, east of which is a rocky islet about 10 feet above high water. A rock lies close off the islet, and a reef that covers, with a shoal at the extreme, extends nearly 100 yards from Rodway point. The northern side of the harbor slopes from wooded hills, and over the west point is an isolated hill 130 feet high, covered with small wood. The point under the church is rugged, and continued under water to the opposite shore, forming a bar, over which only $3\frac{1}{2}$ fathoms can be carried. Smith point, south of the

entrance, is steep-to, but a rock, awash at low water, lies a few yards from the point next within. Inside the entrance, the harbor divides into Northeast cove and the Bottom, the former extending 300 yards, and the latter a continuation of the main basin.

After passing the dangers described above, there is a general depth of 6 fathoms water, with one deep hole where 9 fathoms may be found, and affords excellent anchorage in good holding ground. An islet, 2 feet high, composed of stones, lies in the middle of the Bottom near the north shore, and marks the western limit of the deep water. A rock with 5 feet water lies southwest 50 yards from the islet, and the rock is continued as far again under water. A settlement is formed round this harbor.

Steering rock, a gray island, 7 feet high, lies south 350 yards from the entrance to Bane harbor. A low black rock lies off the southwest extreme, and a rock, with 2 feet water, NNE. $\frac{1}{2}$ E. 50 yards from the east extreme.

Anchorage may be taken up in Bane harbor as convenient.

No vessel should go into this harbor for the first time without a pilot.

Miller point, S. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles, 150 yards from Bane harbor, is a low projection from a high range, and is bold-to.

Rushoon head is the end of a range of cliffs 1,700 yards southwest of Miller point, falling from a high barren table-land surmounted by a boulder 530 feet above high water. Low boulders extend a short distance from the head with deep water close-to.

Rushoon harbor, entered north of Nipper head, a dark wooded hill, 112 feet high, situated 1,100 yards northwest of Rushoon head, is a shallow harbor affording good shelter for fishing craft in $2\frac{1}{2}$ to 5 fathoms; it dries 200 yards from the fresh-water brook at the head.

Jigging cove, between Rushoon and Nipper heads, is faced by a shingle beach on which are several houses, and is steep-to.

A rock, that covers 3 feet at high water, with a shoal stretching a short distance southwest, lies NW. by W. $\frac{3}{4}$ W. 650 yards from Rushoon head, and a rock with 6 feet water lies 140 yards from Nipper head.

Vessels may anchor on a flat outside Rushoon in $7\frac{1}{2}$ fathoms, mud, by keeping the east point of the entrance to the brook at the head open of Nipper head to clear the rock that covers, or inside that rock, close off the beach of Jigging cove, by having the northeast end of Jerseyman island well shut in with Rushoon head.

Rushoon bank, with 9 fathoms water, lies SSW. $\frac{1}{4}$ W., 600 yards from Rushoon head.

The coast between Rushoon and East Broad cove slopes steeply from wooded hills and may be approached to within 100 yards. Gull rock, near the entrance of the cove and close to the shore, is 10 feet above high water and shows white against the dark background.

Broad cove head, a peninsula nearly a mile long, a quarter of a mile wide, and 337 feet high, is separated from the mainland by a narrow marshy isthmus about 60 feet above high water.

East Broad cove affords good anchorage in 12 to 7 fathoms, mud and sand, the holding ground being better nearer the west shore. Several houses are situated on the shingle beach at the head. A plateau of shoal water extends north of this cove, falling suddenly to deep water on the southeast. The general depth on this plateau is $7\frac{1}{2}$ fathoms, and the line of 10 fathoms joins Broad cove head and the north point of the entrance to Rushoon. A shoal, with 5 fathoms water, lies ESE. $\frac{3}{4}$ E., 1,700 yards from the south extreme of Broad cove head.

West Broad cove also affords good anchorage in 10 fathoms, but is completely exposed to SW. winds. The holding ground is said to be better there than in East Broad cove.

Green island, 90 feet high, is the northeastern of a group lying off Broad cove head. It is small, covered with grass, and faced by dark cliffs. A reef extends 250 yards from the northeast end and 200 yards from the southwest extreme. A rock, with 6 feet water, lies ENE. $\frac{3}{4}$ E. 800 yards from the east extreme of Green island, the outer edge of a bank extending from the island.

Emberly island, $1\frac{1}{2}$ miles southwest of Green island, is surmounted by a peak, with a small flat top, 330 feet above high water, that shows prominently from all directions. The sides are steep, in many places formed of dark cliff, except the southwest extreme, that is terminated by a grassy mound 70 feet high. A white islet, 10 feet high, lies off the north point, and a sunken rock close off the point just south of it. Two small rocks lie off the east shore, and the south side is fringed by rugged rocks that cover and extend 200 yards from the shore.

Puddock bank, with 6 fathoms water at the east extreme, extends nearly half a mile from Main-yard point, the east extreme of Emberly island. Simonds rock, with $7\frac{3}{4}$ fathoms on it, lies ESE. $\frac{3}{4}$ E., distant half a mile, and Soundbone rock, with 6 fathoms water over it, bears ENE. $\frac{1}{2}$ E., distant 1,600 yards from the same point. Upper rock, with 10 fathoms water, is situated NE. $\frac{1}{4}$ E., distant 1,150 yards, and Lower rock, with 12 fathoms, bears NE., distant 1,500 yards from Main-yard point.

Fords rock, awash at high water and steep-to, lies SE. by E., 270 yards from some black peaked rocks, off the east point of Emberly island.

The Washball, a rock that covers 4 feet at high water and is steep-to, lies W. $\frac{3}{4}$ N., a quarter of a mile from the white islet off Emberly island. Fox island, entirely open of Oderin island W. by S., leads north of this rock.

Andrews island, 38 feet high, is the largest of a group of square rocks, joined at low water to the southwest point of Emberly island. Rocks that cover lie a short distance off the northernmost of the group.

Oderin island is separated from the southwest point of Emberly island and the above group by a channel 200 yards wide, through which a depth of 9 feet can be carried at low water. A rock that covers lies off the west point of the channel, and another nearly 100 yards from a large boulder at the foot of the cliff on the south side of the passage. No vessel should attempt this channel without a pilot.

island, 36 feet high and covered with grass, lies off the west point of this passage, with shoal water between. The Beach, of shingle, is just south of this point and is backed by a row of houses.

Oderin harbor is entered from the west side of the island and nearly divides it. **Chimney rocks**, the shoalest, with one foot on them at low water, lie outside the harbor, nearly in the middle of the approach. The Episcopal church, shut in with Spurrier point, E. $\frac{1}{2}$ N., leads north, and a wooded conical hill close to the west side of Jude island, shut in with the cliff on Patrick island S. $\frac{3}{4}$ W., leads west of these rocks. A shoal, with 3 fathoms water, lies 140 yards WNW. $\frac{3}{4}$ W. of Chimney rocks, and there is no passage between the latter and the shore south of them.

Spurrier point, north of the entrance, is a grassy peninsula 20 feet high, from which the harbor extends E. $\frac{1}{2}$ S. 1,400 yards, and then with a sharp bend NE. $\frac{3}{4}$ N. 400 yards. The north shore is cliffy, and the south slopes from wooded hills, the highest of which, 255 feet above high water, has a flat summit, with a steep fall to the westward. The Bread-box, a small rock that covers, lies close to the west extreme of Spurrier point. The Episcopal church, with a square tower, stands on the north shore, and the newly-built Roman Catholic church is a fine Gothic building, with a spire, situated on the dividing point of the bends of the harbor. A considerable settlement is built round the shores. Two small islands are situated 400 yards within Spurrier point, and are steep to nearly on the east and south sides. A rock, that covers at high water, lies SE. $\frac{3}{4}$ S., 200 yards from the inner of the two islands, and is nearly connected to the south shore by rocks above and below water.

The Breeches is a shoal rock, with two heads close together, lying W. $\frac{1}{4}$ N., 250 yards from the point on which the Roman Catholic church stands and nearly in the fairway of the approach to the inner part of the harbor. The water is shoal between the Breeches and the south shore of the harbor, but a safe passage may be obtained by keeping the north shore on board.

Anchorage may be had in 7 fathoms in Ship cove, just east of the islands, or inside the rock that covers. Small vessels will find perfect shelter at the head in 3 to 4 fathoms, but at low water the shores dry all round a short distance.

Directions.—To enter Oderin harbor: Shut in the Episcopal church with Spurrier point, and pass that point at 50 yards distant and the same distance south of the islands. After passing the latter, anchorage may be taken up as convenient.

The south shore of Oderin island is composed of steep cliffs and is foul for 200 yards distant. Lance cove head, the east extreme of that shore is a flat-topped bluff, 215 feet high, that also overlooks the harbor. Rocks extend 200 yards from both bills of this head.

Lance cove, an open bay north of the head, has shingle beaches separated by spurs of red cliff. A rock awash at low water lies just off the south point of the cove.

White rock, with 6 fathoms of water on it, is the shoalest part of a bank extending nearly half a mile from Lance cove head.

Patrick island, 110 feet high, lies close to the southwest point of Oderin island, and is wedge shaped, with dark cliffs to the southward and grassy slopes to the northward.

Crow island, 201 feet high, is wooded and conical, with dark cliffs lying close to the west side of Patrick island. Patrick rocks, 13 feet high, are a ledge of black rocks extending SW. $\frac{3}{4}$ S. 350 yards from Crow island.

Fox island, with a wooded summit about 100 feet high and reddish cliffs, lies northwest of Crow island, and is steep-to on the north side. There is no passage for vessels between these islands.

Jude island, separated from the south side of Oderin island by a clear channel nearly half a mile wide, is $2\frac{1}{2}$ miles long and 2 miles wide at the north extremity, narrowing irregularly to a sharp point at the south extreme. The channel between Oderin and Jude islands should be taken by vessels wishing to pass inside, as the shores may be approached to within a short distance.

The north shore of Jude island is of bold cliff with some curious red stripes near the east end. Gull island, a gray rock 48 feet high, marks that extreme and is bold-to. The east shore is also nearly bold-to, consisting of steep cliffs round Eastern cove, a curve in the coast line filled with islets and rocks fronting shingle beaches.

Cape Jude, a remarkable headland, lies near the south end of this shore, and is a round-topped hill, 411 feet high, falling in nearly a perpendicular cliff to the coast. A sharp hill surmounted by a bowlder 400 feet above high water is situated just south of it. Jude island is composed of two high parts connected by a marsh that extends from Eastern to Hay coves. The north part consists of rugged barreu hills, attaining an elevation of 420 feet, an almost isolated cone 395 feet high at the south end, and several wooded hummocks near the shore. The south point ends in a steep bluff and is bold-to.

A rock, with 4 feet water, lies S. by E. $\frac{1}{4}$ E. 750 yards from the south point. Hay cove, 1,400 yards wide and 600 yards deep, lies northwest of the south point and affords anchorage with shelter from easterly winds in 9 to 10 fathoms, sand. At the bottom of this cove is a dark cliffy head with a shingle beach on each side. A rock, that covers 2 feet, lies off Green point, a low projection north of the cove, and a rock with 8 feet water NW. by W. $\frac{3}{4}$ W. 550 yards from the same point.

Jude harbor, on the west side of the island, is entered north of Round head, a hillock 120 feet high, that makes as an island. The harbor extends northeast half a mile, and is free from danger. Anchorage, affording shelter with winds from south round by east to north, may be had in 12 to 10 fathoms, sand and mud, but a heavy swell rolls in with westerly winds. Rocks that cover, extend SW. by W. 200 yards from Poplars head, north of the entrance.

Duck rocks, that cover at high water, are two reefs bold to on the west side, lying in a line parallel to the shore north of the harbor and a quarter of a mile distant. An islet, 8 feet above high water, marks the northwest extreme of Jude island. A rock with 10 feet water lies WSW. 400 yards from this island.

Middle island is the northernmost of a chain of islets lying southeast of Jude island, and is situated ENE. $\frac{1}{4}$ E. $1\frac{1}{10}$ miles from the south point of that island. It is conical, 80 feet high, and bold-to on the west and north sides. A rock, with 10 feet water, lies 200 yards from the south side.

Binghams shoal, with 6 fathoms water, lies E. by N. $\frac{1}{10}$ of a mile from Middle island.

Spicer rock, with 9 fathoms water over it, lies E. $\frac{1}{4}$ N., distant $3\frac{1}{10}$ miles from Middle island.

Harbor rocks, about 10 feet high, SSW. $\frac{1}{4}$ W. $\frac{1}{2}$ mile from Middle island, are a group having deep water a short distance from all sides but east, in which direction, at 200 yards distant, is a rock that covers 2 feet at high water. There is a good channel between Middle island and Harbor rocks.

Badger rock, with $3\frac{1}{2}$ fathoms, lies SE. $\frac{1}{2}$ E. $\frac{3}{4}$ of a mile from Harbor rocks, and breaks in bad weather.

Old Poe shoal, with 6 fathoms least water, lies E. $\frac{3}{4}$ N. $1\frac{1}{2}$ miles nearly, and Point shoal, with 7 fathoms least water, ESE. $\frac{3}{4}$ E. $1\frac{1}{4}$ miles from Harbor rocks. Both these are said to break in bad weather.

Pinnacle island, about 30 feet high, lies SSW. $\frac{3}{4}$ W. half a mile from Harbor rocks, with a clear passage between them. Little Pinnacle about 10 feet high, and Long rock about 50 feet high, lie close in a line SSW. $\frac{1}{4}$ W. from Pinnacle island, with no passage between for a vessel.

Saddleback, a castellated black islet 104 feet high, with grass at the summit, is the most conspicuous of the group, and is bold-to. The passage between it and Long rock is 400 yards wide, and clear in mid-channel.

Little Saddleback, about 20 feet high, is a black islet SE. by E. 600 yards from Saddleback, and has deep water close to the eastward. A bank, with $4\frac{1}{2}$ fathoms least water, extends S. by W. 600 yards from Little Saddleback and breaks in bad weather.

Oderin bank is a large shoal with depths varying from $5\frac{1}{2}$ to 27 fathoms. The western shoal, with 6 fathoms water, lies SE. $\frac{1}{2}$ S. $4\frac{3}{4}$ miles from Saddleback. From this shoal the bank trends NE. $4\frac{1}{2}$ miles to a shoal with $5\frac{1}{2}$ fathoms water, the intervening space being very irregular.

William Sinyard rock, with 10 fathoms water, lies $1\frac{1}{4}$ miles to the westward of Oderin bank, and SSE. $\frac{3}{4}$ E. $5\frac{1}{4}$ miles from Saddleback.

Western rock, with 9 fathoms water, is three-quarters of a mile southwest of William Sinyard rock, and S. by E. $5\frac{1}{2}$ miles from Saddleback. The water deepens rapidly to the westward of this rock.

Big shoal extends 3 miles to the southwestward of Oderin bank, being separated by a gully half a mile wide with 50 fathoms water in it. The northeastern patch, with 10 fathoms, lies S. by E. $\frac{1}{2}$ E. $4\frac{3}{4}$ miles from Saddleback, and from it shoals with 7 to 8 fathoms extend irregularly to the southwestern head with 8 fathoms, which is situated S. $\frac{1}{2}$ W. 6 miles from Saddleback. From Big shoal a chain of banks extends to Mortier bank.

Osmond, Dicks, and Joe rocks are three heads of a bank $\frac{3}{4}$ of a mile northeast and southwest, with least water of 12 fathoms, Joe rock, the westernmost, being S. $2\frac{1}{2}$ miles nearly from Saddleback.

Jim Drake ledge, with 7 fathoms water, lies S. by W. $\frac{3}{4}$ W. 1 mile from Saddleback.

John-the-bay bank lies a quarter of a mile southward of Big shoal, the water between deepening to 45 fathoms. It is three-quarters of a mile in extent between the depths of 30 fathoms. Southwest rock, with 8 fathoms water, is the shoalest part of this bank, and is situated S. distant $8\frac{1}{2}$ miles from the south extreme of Jude Island.

Western rocks, the highest of which is 20 feet above high water, are a group of square dark islets W. $1\frac{1}{2}$ miles from Saddleback. A rock, awash at low water, lies 300 yards, nearly, from the northeast extreme, and a rock, with 3 feet of water, a short distance west of the south extreme.

The Washing-tub, an islet 5 feet above high water, lies WSW. $1\frac{1}{2}$ miles from Western rocks. It is surrounded by reefs, and is nearly con-

nected to Western rocks by a line of shoals that break in ordinary weather, leaving scarcely room for a boat to pass between.

South sunker, with two feet water, lies SSE. $\frac{1}{4}$ E. $1\frac{1}{10}$ miles from Western rocks and has deep water close to the eastward. Harry ledge, with 5 fathoms water, lies in the same direction $1\frac{1}{2}$ miles from Western rocks.

Smith shoal, a bank 600 yards long, with depths varying from $3\frac{1}{2}$ to 5 fathoms water, is situated S. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles from Western rocks.

Kelpy sunker, with 9 feet water, lies SSE. $\frac{1}{4}$ E. $1\frac{1}{2}$ miles from the Washing-tub, with a shoal of 3 fathoms 200 yards east of it.

Little Washing-tub, covering 4 feet at high water, is a small rock situated S. $\frac{3}{4}$ W. one mile from the Washing-tub and has a ledge extending a short distance west from it. Between the Washing-tub and Little Washing-tub are several shoals, and this passage should not be used.

Flower shoal, the southern danger of this group, lies SW. $\frac{1}{4}$ W. 2 miles from the Washing-tub, and consists of two heads a short distance apart; the shoalest, with 9 feet, breaks only in bad weather.

Butler rock, with 7 fathoms water, lies SW. by W. $\frac{3}{4}$ W. 1,350 yards from Flower shoal.

Lachlan rock, with 8 fathoms water, lies SW. $\frac{3}{4}$ S. nearly a mile from Kelpy sunker, and is the southern extreme of rocks extending from that sunker.

Western sunker, awash at high water, lies SW. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles from the Washing-tub. Shoals lie west and southwest 200 yards from it, and a line of shoals blocks the passage between it and the Washing tub.

Whale's back, awash at high water, lies WSW. $\frac{3}{4}$ W. 1,800 yards from the Washing-tub. A shoal stretches a short distance north of this rock.

Foots cape, a rock with $3\frac{1}{4}$ fathoms water, lies WSW. $\frac{1}{2}$ W. $1\frac{1}{10}$ miles from the south point of Jude island.

Bobby rock, with $3\frac{1}{2}$ fathoms water, lies N. by W. $\frac{1}{2}$ W. 1,750 yards from the Washing-tub, and is steep-to.

Black rock, 7 feet above high water, is small and bare. It is situated NW. by W. $\frac{1}{2}$ W. $2\frac{1}{8}$ miles from the Washing-tub, and nearly in the line between it and Copper island. From Black rock a bank with a general depth of 7 to 10 fathoms extends to Green islands, on which a shoal, with 3 fathoms water, lies N. $\frac{1}{2}$ E. three-quarters of a mile from Black rock; and a rock, with 4 feet water, lies 150 yards to the eastward of Black rock.

Black rock sunker, with 12 feet water, lies ESE. 1,100 yards; a rock with 10 feet of water, lies SSW. 300 yards; a reef 700 yards long lies a

quarter of a mile SW. by W., and a rock that covers 5 feet lies WSW 1,800 yards from Black rock.

The following rocks and shoals also lie off Black rock: Liar rock, with 4 fathoms water, S. by W. $\frac{3}{4}$ W. $\frac{3}{4}$ of a mile; Haddock bank, with 10 fathoms water, S. $\frac{1}{2}$ W. $1\frac{1}{10}$ miles; Four-fathom shoal, with $3\frac{1}{4}$ fathoms, SSW. $\frac{1}{2}$ W. $1\frac{2}{10}$ miles; William Henry bank, with $8\frac{1}{2}$ fathoms, SW. $\frac{1}{4}$ S. $1\frac{1}{10}$ miles nearly; and Monks bank, with 6 fathoms water, WSW. $\frac{1}{2}$ W. $1\frac{2}{10}$ miles.

Green islands are a group lying WNW. $\frac{3}{4}$ W. $2\frac{1}{2}$ miles from the south point of Jude island.

Green island, the largest, is 32 feet high and covered with grass over gray rock. Close northeast of it is a small round islet, and two rocks that cover lie northeast of the islet. Long rock, the southernmost of the group, is bare, dark, and 18 feet high. Dollar rock, 12 feet high, lies close to the northward of Green island. A rock, that covers 5 feet, lies west 200 yards from Dollar rock, and Dollar rock sunken, that covers 4 feet, lies NNW. $\frac{3}{4}$ W. 900 yards from Dollar rock, with a reef extending northeast and southwest 200 yards from it. Sunken rocks extend to the west, north, and south of Green islands nearly 1,400 yards.

Flat islands, a group $4\frac{1}{2}$ miles long and 2 miles broad at the widest part, lie between Jude island and the mainland, separated from the latter by a channel one mile wide. They consist of two large islands and a great number of smaller islands and rocks.

Yardie island, the easternmost of the group, is composed of several hillocks, surmounted by a barren cone 130 feet high. A ledge extends 250 yards from the northeast extreme, and islets and rocks, with deep water close south, lie a short distance off the southwest side.

Tinkersshare island, small and wooded, lies close west of Yardie island.

Glimshire island, 100 feet high, flat and wooded, is separated from the west side of Yardie island by a channel 350 yards wide, containing several islets and rocks. A stranger should not take this passage.

Flat island, the largest of the group, is 2 miles long, and nearly divided into three parts by coves extending from both shores. The eastern part is high and wooded, surmounted by a flat summit 235 feet high, and terminated to the southward in Roche peak, a remarkable sharp-topped hill 203 feet high. Vinegar hill, a sharp cone 150 feet high, lies between them. The middle part of the island has a flat range on the east side, with several wooded tufts, the highest 107 feet high, and some lower wooded hills to the westward inclosing a pond. The western part is composed of a flat hill about 100 feet high, a conical mound 82 feet high at the southeast extreme, and several low wooded hills on the northwest shore terminating in sand cliffs.

Flat island cove is situated on the north side of the island, between the east and middle parts. It is 700 yards deep and 500 yards wide, affording good anchorage in 8 fathoms, mud, with shelter from all winds but those from north to east. At the head is a shingle beach about 10 feet above high water, containing a salt-water pond, dividing Flat island cove from the harbor. The water is shoal 100 yards from the head of the cove, the depth decreasing gradually. A ledge extends 300 yards to the eastward from Foots point, north of the cove, that should be given a good berth when turning into the cove.

Tides.—It is high water, full and change, in Flat island cove at 8h. 27m. Springs rise $6\frac{1}{2}$ feet and neaps 5 feet.

Hay cove, near the center of the island between the middle and western parts, is filled with sunken rocks nearly to the line of the points. It is much frequented by fishing craft in the caplin season, when that bait is always plentiful. The bottom of the north shore of this island is composed of bowlders, that extend fully 200 yards from the shingle beaches that fringe it. Frenchman rock that covers lies close off the north point.

A rock, with 10 feet water, lies SW. $\frac{1}{4}$ S. from the north extreme of Flat island, and 500 yards from the shore.

Hiscock rocks, a group of low islets and sunken rocks, lie close off the southeast end of Flat islands.

Davis island, next in size to Flat island, is $1\frac{1}{10}$ miles long, surmounted at the east end by Osmond hill, a sharp peak 114 feet high, and at the west end by Mermaid hill, flat at the summit and 75 feet high. A deep cove runs into the north side, nearly filled with rocks. This island is separated from the western part of Flat island by a channel 250 yards wide, and is distant from the east part 600 yards.

Muscle bank, with a shoal awash at low water, is situated SSE. $\frac{1}{4}$ E. 600 yards from the east extreme of Davis island, and a shoal, with 7 feet water, lies nearly half way between it and the shore, leaving a passage only 250 yards wide between them and Hiscock rocks.

Harbor rock, one foot above high water, lies in the middle of the western channel, and has a shoal extending northwest 150 yards from it. A shoal, with nine feet least water, lies WNW. 500 yards; a rock, with 4 feet water, NW. $\frac{3}{4}$ N. 400 yards; and a rock, that covers 5 feet, N. by W. 100 yards from Harbor rock.

Duck rock, 5 feet high, is the extreme of a ledge of rocks and shoals stretching off the west point of Davis island. A shoal, with 3 fathoms water, lies 250 yards north of Duck rock.

Duck rock sunker, with two feet water, lies N. 500 yards from Duck rock. Roche peak kept midway between Harbor rock and Davis island

leads between Duck rock and Duck rock sunken. There is no passage north of Harbor rock.

Flat island harbor is comprised between Flat and Davis islands, and may be approached from both sides in small craft, but in large vessels from the southeast side only, and neither should be taken for the first time without a local pilot. On the northwest shore, just within the entrance, is Western creek, a small indentation, south of which is a bluff head, with speckled white and dark cliffs. The harbor trends away to Hay cove, off which are an island and several small rocks, and the whole shore is foul. Ledges of rocks extend from Davis island, leaving a narrow channel close to Western creek head, from the western entrance to the harbor. The harbor is a quarter of a mile in diameter, and affords good anchorage in 9 to 7 fathoms, mud, the water shoaling suddenly close to the beach at the head. A large and thriving settlement surrounds this harbor.

Woody island, close south of Davis island, is a dark double hummock 76 feet high. Bald island, bare, gray, and 50 feet high, lies south nearly half a mile from Woody island.

Copper island is the southernmost conspicuous island of this group. It is a wooded cone 135 feet high, and shows well from all directions, except when hidden by the higher part of Flat island. Low islets extend a third of a mile farther south, ending in Copper island rock, 6 feet above high water. Between Davis and Copper islands is a labyrinth of rocks, scarcely passable by a boat.

Paddle rocks are two shoals, with 3 fathoms water, lying SW. $\frac{1}{4}$ S. and NE. $\frac{1}{4}$ N. 800 yards apart, the northern being SW. $\frac{1}{2}$ W. $1\frac{1}{10}$ miles from Copper island.

The Pinnacle, a rock with 4 feet water, lies SW. $\frac{3}{4}$ S. $1\frac{9}{10}$ miles from Copper island, in the middle of the apparent fairway between the mainland and Flat island, and Upper Pinnacle with 10 feet water lies SW. $\frac{3}{4}$ S. 750 yards from The Pinnacle.

The coast between West Broad cove and Red harbor is faced by cliffs that fall from wooded spurs extending from the Blue hills.

Red harbor head, SW. $\frac{1}{2}$ W. $2\frac{1}{2}$ miles nearly from Broad cove head, is a steep cliff with a hole through the base, and a small ledge of rocks just inside.

Red harbor extends from this head in a northerly direction with a slight bend for $1\frac{1}{2}$ miles, and is 800 yards broad. A projecting point, that looks like an island, lies on the east shore nearly a mile from the entrance, north of which a short distance is a rock that covers 6 feet at high water, and a rock that covers lies off Butler point, the entrance point on the west shore. The remainder of the harbor is clear of danger. A small islet is nearly joined to the west shore, north of which

are a few houses. Two considerable streams discharge into this harbor; the deposit from the western stream has formed a shoal 300 yards from the mouth.

Anchorage may be had in 7 to 6 fathoms, sand, off the houses, with shelter from all winds but those from SE. to S., which send in a heavy swell.

The Blue hills of Red harbor are a conspicuous flat range, with a steep fall to the eastward, surmounted by two small sharp peaks 1,100 feet high. They appear blue under almost any condition of weather.

The coast from Red harbor trends southwesterly $3\frac{3}{4}$ miles to John-the-bay, is steep and rugged, with several high sharp hills about 600 feet high, and is bold-to. The Bar, a shoal with $9\frac{1}{2}$ fathoms least water, lies SW. by S. three-quarters of a mile from Red harbor head.

Stanley rocks, that cover one foot at high water, are situated SSW. $\frac{3}{4}$ W. $1\frac{1}{4}$ miles from Red harbor head. The sea breaks on them nearly always, and they are bold-to within a short distance.

Big shoal, with 4 fathoms water, lies SW. $\frac{1}{4}$ W. 1 mile from Stanley rocks.

Black rock, small, and awash at high water, with a shoal extending 200 yards to the westward, lies SW. $\frac{1}{2}$ W. $1\frac{1}{10}$ miles nearly from Stanley rocks.

Woody island, SW. $\frac{3}{4}$ S. one mile from Black rock, is wooded, and 25 feet high, with foul ground extending off it in all directions for a short distance, and for a considerable distance to the eastward.

Woody island rock, with 5 fathoms on it, lies NE. $\frac{1}{4}$ E. 200 yards, and White rock, with 4 fathoms water, bears SE. by E. $\frac{1}{2}$ E., distant 600 yards from Woody island.

John-the-bay consists of the harbor and the Dock. The former is a shallow basin, where fishing craft find shelter from westerly winds in 3 fathoms. It is 600 yards in diameter and contains several rocks.

The Dock is an open cove, 1,100 yards in diameter, affording good anchorage, with winds from SSE to N. by W., in 10 fathoms. The shores are rugged and foul; at the head is a sand cliff faced by a shingle beach, the east extreme of a marshy isthmus about 50 feet high, that connects the peninsula forming Mortier bay with the mainland.

The peninsula is surmounted by a round-topped hill 535 feet high, and is covered by high hills, with deep valleys between them, the eastern being a conspicuous cone 490 feet high.

The east coast of this peninsula is of steep cliff, with two slight indentations; Oat cove, the eastern, having a house in it.

John-the-bay islands, 2 miles southeast of Dock point, lie close off the east point of the peninsula, and are a group of two gray islets, and

some low rocks, the highest 44 feet above high water. Rocks that cover lie 200 yards east and north of these islands, and a shoal, with 12 feet water, lies southeast 100 yards.

The coast from these islands trends sharply to the south.

George True rock, with 8 fathoms water, lies N. by E. $\frac{3}{4}$ E., distant three-quarters of a mile, and the Hummocks, with 5 fathoms least water, lie SSE. $\frac{3}{4}$ E., distant $1\frac{3}{4}$ miles from John-the-bay islands.

John-the-bay head, just west of the islands, is surmounted by a round hill 331 feet high, which shows conspicuously from the line of the coast.

Deadman cove, west of this head, is exposed and rocky. Boats can find shelter there from off-shore winds.

Salter hill, a sharp peak 300 feet high, is situated on the promontory dividing Deadman cove and Rock harbor, and slopes steeply to the west shore of Deadman cove, but gradually to Rock harbor and Rock harbor point, east of the entrance to the harbor.

A rock, that covers 4 feet, lies 140 yards off this point and reefs extend E. $\frac{3}{4}$ N. 1,100 yards from the rock, ending in a shoal with 6 feet water on it.

Numerous shoals are situated off the coast between John-the-bay and the entrance to Mortier bay. Pig ledge, the northeastern, with $3\frac{1}{2}$ fathoms, lies E. $\frac{3}{4}$ N. $1\frac{1}{4}$ miles from John-the-bay islands. Stickland rock, the outermost, with $3\frac{1}{2}$ fathoms, lies ESE. $\frac{3}{4}$ E. $1\frac{1}{2}$ miles nearly from Rock harbor point. Sam's ledge, with 15 feet, lies E. $\frac{1}{4}$ S. $1\frac{1}{2}$ miles nearly and Point shoal with 9 feet SSE. $\frac{1}{4}$ E. from the same point.

Rock harbor is fit for fishing craft only, and is so called from the number of rocks it contains. For a small craft under command there is no difficulty in entering at low water, as all the rocks show, but at high water a pilot should be taken. The best passage is to keep the east shore on board, until an island that joins the mainland at low water is reached, when the course should be altered for Howe islet, a gray rock 10 feet above high water. After passing this islet the vessel should haul to the eastward and anchor in 4 fathoms.

Pinnacle rock, that covers 6 feet, is the westernmost rock and lies WSW. $\frac{3}{4}$ W. 750 yards from Rock harbor point. A considerable settlement surrounds this harbor, with the church, a white wooden building, near the head.

The coast from Rock harbor to the entrance of Mortier bay, nearly 2 miles to the southwestward, is of dark cliff backed by wooded hills and is steep-to. In misty weather, the turning point shows as an overhanging cliff, and off it, shoals are situated nearly a quarter of a mile distant.

Mortier bay is entered through a channel $1\frac{1}{2}$ miles long and half a mile wide, at the north end of which the bay opens nearly 2 miles in diameter with deep water and no anchorage, except in the harbors off it.

Saul islands are situated close off the east point of the entrance. The southern is 70 feet high, bare and gray, and is conspicuous against the dark background when seen from the southward. The northern is wooded, 92 feet high, and connected to the shore by shoal water. Rocks that cover lie a short distance to the northward. The western island, 11 feet above high water, is bare, and has shoal water stretching off it a short distance to the southward.

Skiff-sail rock, with 6 feet on it, lies E., distant 1,000 yards, and **Saul island rock**, with 6 feet water over it, bears SE. by E., distant 400 yards from the southernmost of Saul islands.

Thomas rock, with $4\frac{1}{2}$ fathoms water, lies SE. by E. 1 mile from the southern Saul island.

Big head forms the turning point into Mortier bay on the west side, and is 437 feet high, falling in steep cliffs to the channel and towards the east, but in a gradual slope to north and west. **Goolds cove**, a slight indentation with a sandy beach, around which are a few houses, lies just within the entrance on the east shore.

Spanish room harbor, at the northeast corner of the bay, is formed by a peninsula composed of shingle débris, three-quarters of a mile long and wedge-shaped, the base ending in a bluff, 800 yards wide at the south end, close over which is the summit 111 feet above high water, and the apex, a narrow shingle beach at the north end that joins the mainland, a few feet above high water. An isolated square rock, 30 feet high and covered with grass, lies at the north end of the beach.

Rocks lie off the east point of this peninsula and form the west side of the entrance; the highest is 5 feet above high water, and they are steep-to. The east shore is foul for 200 yards off the cove immediately within the entrance, and a spit extends from the west shore at 800 yards within the rocks, a distance of 400 yards, with 13 feet water at the east extreme. A considerable stream, spanned by a bridge, flows into the east side, from which water can be obtained. A settlement is formed here.

Anchorage may be had in the harbor before reaching the spit in $5\frac{1}{2}$ fathoms, mud, with swinging room 800 yards long and 600 yards broad.

Cashel cove is situated just north of the peninsula forming Spanish room, and affords anchorage in 10 to 6 fathoms, mud, with shelter in all winds but those from SSE. to WSW.

Cashel look-out, surmounted by a boulder 615 feet above high water, is a conspicuous hill lying $1\frac{1}{4}$ miles inland north of Cashel cove, and shows plainly from Placentia bay.

The west shore of Mortier bay slopes from dark wooded hills the spurs of higher ranges inland, the intervening space being almost filled with lakes. Fox hill, 595 feet high, is the most conspicuous, and is situated a little more than a mile inland.

The southwest extreme of the bay narrows to an arm 900 yards broad, that decreases in breadth gradually to a bar at $1\frac{1}{2}$ miles from the entrance.

Anchorage may be had in this arm as convenient in 9 to 6 fathoms, mud.

Jonas rock, that covers 3 feet, lies 200 yards from the north point of the entrance, joined to it at low water, and rocks extend 100 yards from the south shore. From the bar, which is passable by boats at high water, a narrow salt-water arm extends $5\frac{1}{2}$ miles to the southwestward, and nearly joins the head of Burin inlet. A settlement, called Mary town, has been formed on the banks.

The Tolt, a conspicuous conical hill 701 feet high, lies between the long arm of Mary town and Little bay. It shows plainly from Placentia bay, and is continued towards Little bay by a series of high, wooded, conical hills, the highest over Little bay making in three summits, the greatest elevation being 564 feet.

Little bay is entered west of the slopes of Big head; it extends 1 mile with a slight bend, and divides into two arms, the eastern deep inside, but blocked by islets and shoal water, the western shallow from the mouth.

Seal rock, that covers 3 feet at high water, lies NW. by W. $\frac{1}{4}$ W. 500 yards from Eastern head, to which another rock and shoal water nearly connect it. A shoal extends 100 yards NW. $\frac{3}{4}$ W. from Seal rock.

Anchorage may be had in 8 fathoms, mud, immediately within the west point of the entrance, where the bay is 350 yards wide. The bay is barred just within the shingle spit on the east shore. Vessels drawing 13 feet can cross the bar at high-water springs by keeping the east shore close on board, and may careen in safety in the inner basin. Some square islets lie just inside the bar.

Beaubois lies southwest of Saul islands on the west side of the entrance to Mortier bay, is 450 yards long, 200 yards wide, and affords good shelter for a few fishing craft in 2 fathoms. Islets lie in the entrance, and the church, a white wooden building, stands on a slight elevation north of the harbor. This anchorage may be entered by keeping the north shore close on board.

Harbor rock, with $6\frac{3}{4}$ fathoms water, is situated N. $\frac{1}{4}$ W., distant half a mile from Blow-me-down.

Blow-me-down, a wooded cone 221 feet high, lies $\frac{3}{4}$ of a mile south-east of Beaubois. A rock, awash at high water, lies close to the shore, 200 yards NW. by N. of Blow-me-down.

Blow-me-down sunker, with 15 feet water and steep-to, lies NE. $\frac{1}{2}$ N. 600 yards from Blow-me-down.

Duricle, an open cove, lies SSW. 1,400 yards, and **Tides cove** S. $\frac{1}{2}$ E. $1\frac{1}{6}$ miles from Blow-me-down. Both these coves afford anchorage with off-shore winds in 13 to 7 fathoms. There are houses in both coves.

Croney island, 170 feet high, lies S. by E. $2\frac{1}{6}$ miles from the entrance to Mortier bay. It is a remarkable conical island, wooded at the summit, with steep cliffs to the northeastward and is bold-to. It is the best land fall to make in foggy weather when trying to reach Mortier bay from the southward, or Burin from the northward. Several shoals with 6 to 14 fathoms lie off this island.

Croney rock, with 5 fathoms water, lies SSE. $\frac{3}{4}$ E. 250 yards, and **Black head rock**, with 5 fathoms water, lies SE. $\frac{1}{4}$ S. 1,450 yards from Croney island.

A shoal on which there is a depth of 16 feet lies in the vicinity of Black head rock; from it Croney island south extreme bears NNW., distant 1,200 yards.

Little Mortier bay is situated S. by W. $1\frac{1}{2}$ miles from Croney island. At the head it divides into two arms. Mortier creek, the western, is fit for fishing craft only, and has a rock close to the north point.

Fox cove, the eastern arm, affords good anchorage, though the space is confined in 10 fathoms. There is a settlement on the east shore.

Breakheart rock, with 14 feet water, lies 250 yards off the west point of Cuckolds cove, a small indentation on the north shore just within the entrance.

Western island, a small black rock, topped with grass, lies off the west side of the bay.

Western rock, with 3 feet water, lies N. by W. $\frac{1}{4}$ W. 350 yards from Western island. There are no other dangers, and the bay may be entered in mid-channel.

Western shoal, with 6 fathoms water, is situated SSE. $\frac{3}{4}$ E. 900 yards from Western head of Little Mortier bay, and is steep-to all round.

Mortier rock, with 3 fathoms water, is the least depth on Mortier bank, a shoal that covers a space 3 miles long and half a mile broad within the depth of 20 fathoms. It lies FNE. $\frac{3}{4}$ E. $6\frac{1}{2}$ miles from Burin light-house, and has 6 to 11 fathoms close-to all round.

Brandy rocks, always breaking, lie off the shore within Iron island, leaving a passage 800 yards wide between them and the island.

Peary shoal, with 11 fathoms water over it, is an isolated rock bearing E $\frac{3}{4}$ S., distant $5\frac{1}{2}$ miles from Croney island.

Morris rock and **Little shoal** are two heads of a bank lying S. $\frac{1}{2}$ E., one mile from Peary shoal. Little shoal, with 9 fathoms water, lies ESE. $\frac{1}{2}$ E., $6\frac{3}{8}$ miles from Croney island, and Morris rock, with 10 fathoms is situated NNE $\frac{1}{2}$ E. 600 yards from Little shoal.

Iron island, 160 feet high, is two miles southward of Little Mortier bay, covered by grass, faced by dark cliffs, and conspicuous from seaward.

Gallop rock, with 10 feet water, lies E $\frac{1}{2}$ S. 1,100 yards; **White Horse**, with $4\frac{1}{2}$ fathoms, SE. $\frac{3}{4}$ E. 1,150 yards; **Gregory rock**, with 6 feet, SW. 800 yards; and **Duck rock**, with 3 fathoms water, SSW. 1,400 yards from Iron island.

There is a passage 1,200 yards wide between Gregory rock and Burin island.

Burin harbors consist of several small coves and a long inlet affording excellent shelter for vessels of all sides.

Burin island forms the seaboard and protects the small coves. It is $2\frac{3}{4}$ miles long, narrow at the northern portion, and at the south extreme is Dodding head, a remarkable conical bluff 400 feet high.

Light.— From a lighthouse on the summit of Dodding head a white revolving light exhibited, attaining its greatest brilliancy *every minute*, at an elevation of 430 feet above high water, and visible 27 miles in clear weather. In consequence of the great height of this light, it is often obscured by fog when the coast line is clear.

Dodding rock, awash at low water, lies E. $\frac{1}{2}$ S. from the light-house, 600 yards from the shore.

Cockle rock, with 3 fathoms water, lies S. $\frac{1}{2}$ W. 500 yards from Cat island, a small island nearly joined to the south extreme of Dodding head.

Great Burin harbor is on the west side of Dodding head, between Burin and Shalloway islands. It is fit for small vessels only, and has several rocks near the head. Shoal water extends 250 yards west from Shalloway head, the west extreme of Shalloway island, and breaks in bad weather. This point should be given a good berth when rounding it.

Mine, Oven, and Hooper rocks lie off the west side of Burin island, and in taking Burin passage between it and the main the west side of the passage must be kept on board to avoid these rocks.

Port-au-bras, a narrow arm containing good shelter for schooners, runs in north of Bruin island.

Little Burin harbor is entered a quarter of a mile WSW. of Charlie island situated close to the north point of Burin island. It affords anchorage in $8\frac{1}{2}$ fathoms, in a space 600 yards long and 400 yards broad,

but the entrance is only 100 yards broad, narrowed by a rock with 8 feet water, lying off the north point, a third of the distance across. Several islands lie off the west side of the harbor. To enter, keep Simmons island south of the entrance close on board, and anchor as convenient between the islands and the east shore.

Ship cove, south of Little Burin harbor, is 1,200 yards deep and 600 yards wide at the entrance, diminishing gradually to the head. There is no difficulty in approaching it except a rock, with 11 feet water, off Troak point south of the entrance 50 yards distant, and a shoal with 3 feet water, the same distance off Jeans point, the next south of Troak point.

Anchorage may be obtained in 11 to 13 fathoms, sand or mud, with good shelter, but a large vessel should moor in a strong breeze.

Poor island is a small rock situated west of Neck point, the south extreme of the west shore of Burin passage.

Poor rock, with 12 feet water, is the extreme of the ledge extending 350 yards southwest of Poor island, and is steep-to on the west side.

Woody island, 100 feet high, WNW. 700 yards from Poor island, fronts the middle of the entrance to Burin inlet, and is steep-to on all sides. Shag rock lies close to the southeast side. There is a clear passage on each side of Woody island.

Burin inlet runs in a nearly straight line N. $\frac{1}{2}$ W. 5 miles from Woody island, is a quarter of a mile wide for 2 miles, and expands to $1\frac{1}{4}$ miles in width at 3 miles from the entrance. To enter; keep the west shore on board to avoid some rocks close to the east point just within the entrance. After passing Spoon point, three-quarters of a mile from the entrance on the west shore, round into Spoon cove to avoid Stag rock, the end of a ledge 400 yards off the east shore. When the entrance points are closed, mid-channel may be kept to the anchorages.

Anchorage may be had off Back cove, an indentation on the east shore 2 miles from the entrance, in 15 fathoms, south of Sugar loaf, a conspicuous cone 145 feet high, close to the east shore; or farther in northwest of the Sugar loaf in 7 to 9 fathoms, mud. Beyond this the harbor is narrowed by a shallow spit extending from the east shore, and should not be entered.

Water can be procured easily from Big Salmonier, a considerable stream on the west shore of the last anchorage.

Coal.—Small supplies of coal can generally be obtained at Burin inlet.

Tides.—It is high water, full and change, at Burin harbors at 8h. 45m. Springs rise $6\frac{1}{2}$ feet, neaps $4\frac{1}{2}$ feet.

Little Burin island, $1\frac{1}{10}$ miles southwest of Burin island, is separated from the mainland west of the entrance to Burin inlet by a deep passage 350 yards wide, and is bold-to on all sides.

Emberly rock, with 4 fathoms water, lies SE. $\frac{1}{2}$ S., 1,300 yards from the northeast extreme of Little Burin island.

Corbin island, 250 feet high, steep to all round, is 1,300 yards southwest of Little Burin island, separated from the mainland by a deep channel a quarter of a mile wide.

Corbin harbor, $1\frac{1}{6}$ miles southwest of Corbin island, is a narrow inlet fit for small vessels, entered between Long point on the north and Miller head on the south. All the points of the harbor are foul a short distance off. Goat island lies close to the west shore, just within the entrance.

Old Harry, awash at low water, lies E. by S. a quarter of a mile from Long point. Goat island, just open south of Long point, leads south of Old Harry to the mouth of the harbor.

Shoals extend 300 yards east of Miller head.

Corbin head, a wedge-shaped cliff-faced head, 180 feet high and bold-to, is situated 1,200 yards south of Miller head.

A rock, with 10 feet water, lies SSW. a quarter of a mile from Corbin head, in the middle of the entrance to L'anse au Diable, a small cove southwest of that head.

Bass rock, with $3\frac{1}{2}$ fathoms water, lies SW. $\frac{1}{2}$ S., 700 yards from Bass point, a hummock with low rocks close to the base, and is 600 yards from the nearest shore.

Sauker rock, with 3 fathoms water, SE. $\frac{1}{2}$ E., 400 yards from Sauker head, is the outer of three rocks lying off the head. The shore between Sauker head and Bass point is foul, and should not be approached within a quarter of a mile.

Little St. Lawrence harbor, 8 miles to the southwestward of Burin island, runs in northwest $2\frac{1}{2}$ miles, with a breadth of 800 yards to a peninsula $1\frac{1}{2}$ miles within the entrance, where it narrows to 300 yards and again expands when the peninsula is passed. The peninsula is 55 feet high, and joined to the east shore by a narrow shingle beach.

Harbor rock lies 150 yards from the south extreme of the peninsula, and the same distance from the west shore. The east shore of the harbor is foul for 200 yards, the west side is bold-to. Large vessels can find temporary anchorage in 15 to 11 fathoms, but a heavy sea rolls in with southerly winds.

Small vessels can lie in perfect safety north of the peninsula in 4 to $2\frac{1}{2}$ fathoms, mud, and to reach there should keep the west shore close on board to avoid Harbor rock.

Water may be had from a cascade on the east side, just within the peninsula.

Sculpin shoal, with $3\frac{3}{4}$ fathoms water, lies E. $\frac{1}{4}$ S., 900 yards from Sculpin point, east of the entrance, close off which is a small rock.

Middle head, separating Little from Great St. Lawrence harbor, slopes from Blow-me-down, a conspicuous hill 420 feet high. The shore is bluff, and has deep water close-to. The following shoals are near: **Point rock**, with 4 fathoms water, SSW. $\frac{3}{4}$ W., 450 yards; **Butler rock**, with 5 fathoms, SSE. $\frac{3}{4}$ E., 450 yards; and **Garden bank**, with $9\frac{3}{4}$ fathoms, SE. by E. $\frac{1}{4}$ E., 1,200 yards from Middle head.

Great St. Lawrence harbor is $2\frac{1}{4}$ miles deep, and half a mile wide for $1\frac{1}{4}$ miles, when it narrows to 600 yards between Blue beach point on the west and Herring cove on the east shore. A beach of shingle, said to be enlarging, stretches 250 yards from the west shore, at 800 yards distance from the head.

Anchorage may be had in 10 to 20 fathoms in the entrance, or in 12 fathoms off Herring cove, or small vessels may find shelter behind the shingle beach in $2\frac{1}{4}$ fathoms.

Southerly gales send a heavy sea into the outer part.

Water can be procured from a stream on the east shore opposite the beach of shingle.

Tides.—It is high water full and change in Great St. Lawrence harbor at 8h. 30m. Springs rise 7 feet, neaps 4 feet.

A large settlement surrounds this harbor, in which is a small church.

Chapeau rouge, a remarkable conical hill 748 feet high, is situated west of the entrance to Great St. Lawrence harbor, and is a good distinguishing mark for this part of the coast. It is the landfall generally made by vessels bound to the south and east coast from the westward, who try to sight it about 20 miles distant.

Rosey rock, with 12 feet water, 150 yards off the shore just south of Chapeau rouge, is the only danger off the shore of this hill.

Cloué rock, with 10 fathoms water on it, lies SSE. $\frac{1}{4}$ E. from cape Chapeau rouge, distant 8 miles.

The coast from Chapeau rouge to Laun head 5 miles distant, consists of several open coves, and may be approached close-to, except just west of a curious pinnacle 250 feet high, close to the shore $1\frac{3}{4}$ miles to the eastward of Laun head, where a shoal is situated 400 yards from the shore.

Little Laun harbor is open and exposed, $1\frac{3}{4}$ miles deep and three-quarters of a mile wide, and is situated $1\frac{1}{4}$ miles north of Laun head. At the head, a shingle beach nearly separates it from a salt water pond. There is anchorage with shelter from off-shore winds in 11 to 9 fathoms, rocky bottom

Duck, Tiller and Black coves, open bights, lie between Little and Great Laun harbors.

Great Laun harbor runs in $1\frac{1}{2}$ miles with a uniform breadth of 800 yards. The shores are bold-to and the water decreases gradually to 5 fathoms, a mile from the entrance, and thence gradually to the head. Murphy rock, with 5 feet water on it, is the only danger in the harbor, 200 yards off the east shore and 600 yards from the head. There is a settlement, with a church on the east side.

Anchorage may be obtained in $8\frac{1}{2}$ fathoms off the east shore with good shelter.

Vestal rock, with 6 feet water, lies S. by W. $\frac{1}{2}$ of a mile from East head; **Black hill**, a conspicuous range 520 feet high at the head of the harbor, just open of Laun point on the east side of the harbor, leads west of this rock to the harbor.

Ragged head, a mile SSW. of Great Laun harbor, is the dividing point between it and Lansey bank cove, and is continued to the south-east by a point of low rocks.

Ragged rock, with 6 feet water, lies 450 yards off this point in the line of the rocks. **Webber point**, a low projection on the west shore of Great Laun harbor, open east of Blow-me-down point next south, leads east of this rock.

Lansey bank cove is an open bight affording no shelter.

Colombier island, 217 feet high, with a small islet close southwest, is separated by a clear channel $\frac{1}{2}$ mile wide from Ragged head; shoals lie 200 yards southeast of the islands.

Swale island, with shoals extending a short distance SW. from it, lies W. by N. $1\frac{1}{2}$ miles from Colombier island.

Middle island lies SW. $\frac{1}{2}$ W. 2 miles from Colombier island; shoals extend S. and SW. from it for $\frac{1}{2}$ of a mile.

A small island lies $\frac{1}{2}$ mile S. by W. from Middle island, east of which, $\frac{1}{2}$ of a mile, is a shoal.

The coast from Middle island to Lamelin consists of deep coves, but they are all exposed.

Taylor bay, $3\frac{1}{2}$ miles to the westward of Middle island, is the deepest of these. Off the east point a reef extends some distance from the shore.

Lamelin bay is divided from Taylor bay by Point aux Gauls, a low and narrow promontory. This bay is filled with islets and shoals. Small vessels find an anchorage in it north of Allan island, but none should attempt it without a pilot.

Lamelin harbor is formed by Allan island on the east, and Morgan island on the west, and contains anchorage in $4\frac{1}{2}$ fathoms water, but should be used for temporary shelter only, as the swell always rolls in.

A shoal, with 9 feet least water, lies near the middle of the entrance, but may be avoided by keeping either shore on board.

Some islets lie off the south extreme of Morgan island, and a rock with 9 feet water is situated 200 yards from the outer.

Light.—A light is exhibited from a small octagonal light-tower on the southeast point of Allan island.

The light is *fixed white*, elevated 64 feet above the sea, and visible 8 miles.

The light-house, constructed of wood, is painted *red and white*.

Position, approximate, latitude $46^{\circ} 51'$ N., longitude $55^{\circ} 47'$ W.

The coast from Lamelin to May point, 8 miles to the westward, is low and fronted by sandy beaches, rising to a moderate elevation in long sloping hills some distance inland.

Lamelin ledges are dangerous reefs extending along the whole of this coast at a distance of 3 miles from shore.

Tylor rock, with 11 fathoms water on it, lies S. $\frac{1}{2}$ E. from Allan island, distant 4 miles.

CHAPTER III.

NEWFOUNDLAND, SOUTH COAST.—ST. PIERRE AND MIQUELON ISLANDS.

St. Pierre island, SW. $\frac{1}{2}$ W. $9\frac{3}{4}$ miles from May point, is barren in appearance and irregular in its outline, which appears from a distance to be composed of many peaks, the highest of which is 671 feet above high water, and is thus easily distinguished from Langlade or Little Miquelon, the outline of which is nearly horizontal. At the southeast extreme is a conspicuous conical hill joined by a low neck to the mainland, called Galantry head.

The harbor is situated on the east side of the island between it and Chien island, and may be approached by three channels between the islands.

Light.—Galantry head is surmounted by a light-house painted white, from which, at an elevation of 210 feet above high water, is exhibited a *flashing light showing a flash every 10 seconds*; the flashes occur in the order of *one red and two white*. The light is visible 18 miles in clear weather, but on certain bearings is obscured by St. Pierre island.

Fog signal.—Near Galantry light-house, during thick or foggy weather and in snow-storms, a steam fog-whistle will be sounded in blasts of *six seconds* duration *every minute*, with an interval of *fifty-four seconds* between blasts; this whistle should be heard from a distance of 7 miles. This fog signal will be in operation from the 15th March to the 1st December; but from the 1st December to the 15th March only at the time of the expected arrival at St. Pierre of the fortnightly mail from Halifax.

The steam whistle supersedes the gun signals formerly in use, but should the apparatus be out of order at any time the gun signals will be resumed. These consist of ~~two discharges, with an interval of 3 minutes between each~~, fired every ~~two~~ hours, from 6 a. m. to 6 p. m., and of a return gun for gun to any vessel which fires to ascertain the position, till sunset.

Semaphore.—Signals will be shown daily during the month of April in each year, from the semaphore at the light-house station on point Galantry, by which commanders of vessels bound for ports in the gulf and river St. Lawrence will be advised as to the condition of the ice in the gulf, the winds, the temperature, and the weather indications.

Daily dispatches are received at St. Pierre, *via* Sydney, from the telegraph and signal stations at Southwest point, Anticosti; Cape Rosier,

Gaspé; Cape Magdalen, Gaspé; and Grosse isle and House harbor, Magdalen islands.

Commanders of vessels desiring information as to the state of the ice and the weather in the gulf can obtain it by lying-to off point Galantry and signaling for information, which will be furnished free of cost.

Cape Noir and Chasseurs island, two islets close to Galantry head, are steep-to on the south and east sides.

Indre shoal, with 2 fathoms over it at low water, lies 250 yards SW. $\frac{1}{2}$ W. from Cape Noir.

Blanche point, nearly a mile to the southwestward of Chasseurs island, is the rocky termination of a conical peninsula, Little harbor head, 68 feet above high water; on this point is a conspicuous square rock.

Ravenel bay runs in west of this point, and is the landing place of some telegraphic cables. The east shore is foul, but near the west shore there is a fine, clear, sandy bottom, with $4\frac{1}{2}$ fathoms water and good shelter from off-shore winds. Le Diamant, a peaked rock, lies off the west point of this cove.

Savoyard point is the southwest extreme of the island, and is a prolongation of the fall of the high land.

Savoyard Shoal, with 3 feet water, lies 350 yards southwest of this point, and between it and Diamant point are several shoals, the outer of which, Belier shoal, with 6 feet water, is situated W. $\frac{3}{4}$ N. $\frac{3}{4}$ of a mile from Diamant point, and $\frac{1}{2}$ mile off-shore. The west shore of the island falls steeply to the sea and is bold-to.

Henry point, the north extreme of the island, is a low peninsula under high land. A shoal, with 12 feet water, lies close-to, and a bank, with $4\frac{1}{2}$ fathoms, lies northeast 350 yards from the point.

Great Colombier, 492 feet above high water, is bold, dark, and steep, lying off the north end of St. Pierre, separated by Henry channel 600 yards wide.

Little shoal lies 450 yards N. by E. $\frac{1}{2}$ E. of the extreme west point of Grand Colombier:

The head of the rock is solid, has a diameter of about 50 feet, and is covered with $4\frac{1}{2}$ feet of water. At a distance of 17 yards all around depths of 26 feet are found, and at 33 yards from 46 to 49 feet; bottom, sand, rock, coral, and pebbles.

The rock is covered with sea-weed.

Little Colombier lies 180 yards northeast of Great Colombier, with a clear channel between.

Colombier shoal, with 12 feet water, lies NE. $\frac{1}{4}$ N. 600 yards from Little Colombier.

Cape Blanc and cape Rouge are so called from the color of the cliffs. The former is 600 yards southeast of Henry point, and half a mile farther southeast is cape Rouge, a high red cliff. The coast is bold to from cape Blanc to cape Rouge.

Cape Aigle is south 800 yards from cape Rouge, and the shore is foul.

Cape Rouge shoals lie off the cape, the eastern of which, with 12 feet water, is 400 yards distant.

Little St. Pierre, a small islet, steep to on the east side, lies a quarter of a mile ENE. of cape Aigle, and is 17 feet high. There is no passage between it and the main for ships.

Beacon.—There is a beacon on this islet 16 feet high, and in clear weather it may be seen from a distance of 5 miles.

The coast from cape Aigle trends southwesterly a little more than a mile to the town of St. Pierre, the shoal water gradually increasing its distance from the shore.

Canon point is a reef of rocks, extending eastward from the town, which covers at high water; at the extremity stands a light-house.

Lights.—To indicate the best water through South channel, there have been erected two light-houses, which kept in line will lead in mid-channel.

From the light-house at the extreme of Canon point, a *fixed* white light is exhibited at an elevation of 36 feet above high water, and in clear weather should be visible 6 miles. NW. 800 yards from the outer light-house is another light-house, from which a *fixed red* light is shown, at an elevation of 64 feet above high water, and should be visible 3 miles in clear weather.

Beacon.—A beacon 8 feet high has been erected on La Vache, a rock situated 200 yards south of the light-house on Canon point.

Bertrand rocks are situated half a mile southeast of Canon point, and consist of low rocks extending 350 yards from the main. Between them is the inner harbor of St. Pierre, shoal and narrowed by Moules island, a third of the distance from Canon point.

Beacon.—A white beacon, 28 feet high, and visible 5 miles, stands on the eastern of the Bertrand rocks; vessels should pass to the eastward of this beacon.

St. Louis bank, with 4 feet water, lies NW. by N. 200 yards from the beacon on Bertrand rocks, and is marked by a buoy. The light-houses in line lead north and east of this bank; vessels should pass to the northward of the buoy.

Clorinde shoal, with $1\frac{3}{4}$ fathoms over it, lies 300 yards SE $\frac{1}{2}$ S. of Leconte point light.

A shoal, with $1\frac{3}{4}$ fathoms over it, lies SW. $\frac{1}{4}$ S. 400 yards from Leconte point light.

Chien island is low, separated by South channel, 500 yards wide, from Bertrand rocks, and is easily distinguished by a church and a light-house. It is foul all around.

Light.—On Leconte point, the west extreme of Chien island, is situated a light-house, from which is exhibited a *fixed* light at an elevation of 62 feet above high water. The light shows white between the bearings of NW. by W. $\frac{3}{4}$ W. and NNW. $\frac{1}{4}$ W.; *red* from NNW. $\frac{1}{4}$ W. round by E. to E. by S., and in clear weather should be seen from a distance of 7 miles.

Massacre island is a low islet 300 yards off the southwest end of Chien island.

Vainqueur island lies northeast of Chien island, and is separated from it by Flétans channel, 600 yards wide. Cape Chèvre, a mound 102 feet high, is situated at the north end of this island, off which, distant 200 yards, lies Plat rock, 13 feet above high water. Black rock, 20 feet above high water, lies ENE. $\frac{3}{4}$ E. 700 yards from the same cape; southeast of Vainqueur island is Pelée island, joined to it at low water.

Pigeon island, northwest, 300 yards from Vainqueur island, is wedge-shaped, the highest part, 90 feet above high water, being over the north end. From this end some islets, Les Canailles, extend 300 yards and are steep to on the west and north sides.

Haché rock, 16 feet high, lies 300 yards off the east point of Pigeon island.

Gros-nex, a conspicuous rock, 27 feet high, lies in Flétans channel between Chien island and Vainqueur island.

From Black rock to Diamant point the coast is bordered by rocks and shoals, some of which are nearly a mile from the shore. The following are the most dangerous:

Enfant perdu, a small rock, 3 feet above high water, is situated ESE. 1,200 yards from Pelée island.

Little Shoal, with 10 feet water on it, is 400 yards beyond in the same direction.

Great shoal lies NE. by E. 650 yards from Enfant perdu, and has 5 feet water on it.

Les Cailloux de terre is a large bank, with $3\frac{3}{4}$ fathoms least water, SW. $\frac{1}{4}$ S. nearly half a mile from Enfant perdu.

Bataille bank, with $3\frac{1}{4}$ fathoms water, lies ESE. 1,300 yards from the light-house on Chien island.

A rock covered with 2 fathoms at low water lies on the southern edge of this bank.

Gélin shoal, with 6 fathoms water, lies ENE. $\frac{1}{2}$ E. $1\frac{1}{2}$ miles, and Caillou au Chat, with 8 fathoms, E. by N. nearly a mile from Galantry head light.

Cat rock, with 5 fathoms over it, lies E. $\frac{3}{4}$ N. $1\frac{1}{2}$ miles from Galantry head light.

Les Grappinots, with 7 fathoms water, lie ESE. 600 yards from Chasseurs island.

Grappin shoal, with $4\frac{1}{2}$ fathoms water, lies SSE. $\frac{1}{2}$ E. three-quarters of a mile nearly from Chasseurs island.

Tournioure shoals are two in number, the eastern of which, and the shoaler, has 10 feet water, and is situated SW. $\frac{1}{2}$ W. a little more than half a mile from Blanche point.

Bonnière shoal, with 6 fathoms water, lies SW. by S. $1\frac{1}{2}$ mile Blanche point.

Marne shoal, with 15 feet water, is situated S. a little more a mile from Diamant point.

Directions for St. Pierre harbor.—North channel, between and St. Pierre islands, is wide and easy for working to windward the only one that should be taken by large vessels.

From the eastward, after clearing the Great shoal, the islets of queur and Pigeon islands may be approached close-to. When standing in north of Little St. Pierre, that islet must be kept open west of the battery on the north point of Chien island, to clear cape Rouge shoals.

At night the *red* light, near the town of St. Pierre, open of cape Aigle, clears these shoals.

In working to windward, care should be taken to guard against the squalls that sweep down from the high land between Great Colombier and cape Diable on the west and cape Aigle on the east side.

Anchorage.—Large vessels may anchor as convenient, after passing the battery on Chien island, and before passing Massacre island, in which space there are 7 to 15 fathoms water in mid-channel. The most dangerous winds are from NE., whereby the heaviest sea is produced, and to guard against which vessels should moor.

Vessels should not proceed west of this anchorage, without local knowledge or without a pilot.

Rock.—A rocky head, covered 7 feet at low water, and surrounded by depths of from 23 to 26 feet, is reported to lie north 750 yards from Canon point light.

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Pilots.—The employment of a pilot to enter this port is compulsory, and the payment will be enforced if a properly distinguished pilot offer his services, whether accepted or not.

Directions for Flétans channel.—If wishing to enter St. Pierre harbor by this channel, which lies between Chien island and Vainqueur island, steer for the south part of Chien island, and when cape Bawdry, the east extreme of Chien island, comes in line with Gros-nez rock, that mark should be kept on until within 200 yards of Gros-nez rock, passing between the shoals off Chien and Vainqueur islands. Gros-nez should be left to the westward 100 yards, and a course thence steered to pass 200 yards east of cape Bawdry, when the anchorage may be steered for.

Directions for South channel.—This channel lies between Bertrand rocks and Chien island, and has 12 feet least water. The light-house on Leconte point should be brought to bear about NW., and steered for on that bearing until the light-house at Canon point comes in line with the light-house at St. Pierre. Keep on this range until two beacons on the main island, eastward of the town, come in line. The higher is on top of a large white stone at the brow of the hill, and the lower just above the road. These beacons must be kept in line NW. $\frac{1}{4}$ W., until Vigie d'Aigremont, a beacon on a hillock 86 feet high, south of the town, is in line with the light-house on Canon point SSW. $\frac{1}{2}$ W. nearly. This mark will lead to the anchorage.

Vessels beating between Massacre island and Rodrigue bay should tack before coming on the range of the Vigie d'Aigremont, with the small fort east of St. Pierre on the extremity of the low rocks, on which Canon point light-house is built.

Barachois de St. Pierre, or the inner harbor, is available for vessels drawing 11 feet at high water only. The holding ground is indifferent, but there is little sea, and vessels that ground are rarely damaged. A number of schooners lay up there for the winter.

Tides.—It is high water full and change at St. Pierre at 8h. 33m.; springs rise $6\frac{1}{2}$ feet, neaps $4\frac{1}{2}$ feet.

The flood-stream flows to the northward through South and Flétans channels, and out to the eastward through North channel. This regularity is only found near the shore. At a short distance seaward, the current runs almost constantly to the northward, and is very little influenced by the feeble tidal stream of these localities. In the anchorage, the tidal stream is sometimes of sufficient force to swing ships against a strong breeze. The ebb flows in the opposite direction to the flood.

Between St. Pierre and Langdale the flood-stream runs NE. in the direction of the channel, and turns 1 or $1\frac{1}{2}$ hours after high water, but often continues to run in the same direction all through the ebb, at a

reduced rate. The currents and tides are, however, very irregular, and no dependence can be placed on any particular direction or rate.

Cod fishery.—This industry is principally prosecuted by vessels equipped at the northern ports of France, averaging from 120 to 200 tons each, and which leave on 1st March; some proceed at once to the Newfoundland banks, but the great number go first to St. Pierre for herring, and they all return to St. Pierre for a second supply of bait in June. The method adopted is for the ships to anchor on the banks, while bultows are laid out in large undecked boats, sometimes as far as 6 miles from the vessel. This system is attended by frequent loss of life, the boats being unable at times to return to the vessels, and the latter occasionally go down at their anchors.

On the west coast of Newfoundland the vessels follow the fish from south to north till the caplin have disappeared, when they repair to the several ports at which the catch is to be cured, and after the vessels are moored, the crews fish with bultows off their respective anchorages till the end of the season.

On the north coast of Newfoundland vessels have a position assigned to each for a term of five years, and they proceed direct from France to these posts, where they are moored. The crew then fish with seine, hook and line, or bultows.

Green island, NE. $\frac{3}{4}$ N. $4\frac{1}{2}$ miles from the east point of Great Colombier, is half a mile long, 154 feet above high water, and is so called from the color. S. by W. $\frac{3}{4}$ of a mile from it are some islets, the outer of which, *Enfant perdu*, is S. $1\frac{1}{2}$ miles distant from Green island.

A rock, that covers at two-thirds flood is the eastern of these rocks, and is situated S. $\frac{1}{2}$ E. $\frac{1}{2}$ mile from the east point of Green island. There is a good passage between Green island and the islets off it, and the water is deep all round this group.

Little Miquelon or Langlade island, 3 miles northwest of St. Pierre island, is steep-to, and the sides are cliffy except at the north part. The summit, nearly flat, has an elevation of 656 feet. The general appearance is flat, but when seen from the westward, some hummocks show out at the north end. Both portions of Miquelon island lie in a north and south direction. From the south extreme of Little Miquelon to the south end of the sandy neck joining it to Great Miquelon is 7 miles; the sandy neck is $5\frac{1}{2}$ miles long, and from its north extremity to the north point of Great Miquelon is 9 miles. At the north extreme of the shingle beach is a large pond, called *Great Barachois*, to which small schooners find access at high water, entering from the east side of the beach.

A reef, which breaks, extends about 200 yards from Plate point, the west extreme of the island.

Light.—A light is exhibited from a light-house on the summit of Plate point.

The light is *quick flashing, white*, of the 1st order, visible in clear weather 20 miles. A ray of *red* light is shown over Seal rocks, extending 1 mile westward of them.

The light-house, painted *black* and *white* in horizontal bands, is situated near the point.

Position: Latitude, $46^{\circ} 49' 5''$ N.; Longitude, $56^{\circ} 24' 5''$ W.

There is a fog siren near this light giving *two blasts of eight seconds duration*, separated by an *interval of eight seconds* and followed by a *silence of 36 seconds*.

La Baie, as the passage between St. Pierre and Little Miquelon is called by the inhabitants, is deep and the shores forming it are bold.

Anchorage may be obtained on the east side of the long shingle beach which joins Great Miquelon and Little Miquelon islands, but it is exposed. The best place is off the north shore of Little Miquelon in $6\frac{1}{2}$ fathoms, near a cove just east of the gens d'armes station.

Great Miquelon island is very irregular in outline, with hills ranging from 656 to 820 feet in height. From the northwest extreme a tongue of land extends in nearly a semicircle, forming Miquelon road. On this tongue are several conspicuous hills and a large settlement with a prominent church. The northeast extreme, cape Miquelon, is a steep cliff, bold-to.

A shoal stretches off the south side of Miquelon road, half a mile, the northern extremity bearing S. $\frac{1}{2}$ E., $1\frac{1}{2}$ miles from Otter point.

Anchorage.—Shelter may be had with winds from N. round by west to SSW. in 6 fathoms water off the settlement, with fair holding ground.

Light.—There is a light on cape Blanc $3\frac{1}{2}$ miles SW. of cape Miquelon.

The light shows *one flash of ten seconds duration every minute*, and is visible 15 to 16 miles.

It illuminates a sector of 300° . A *red* sector over Seal rocks extends about a mile to the northward of those rocks.

The obscured sector of 60° has for its northern limit a line which passes about 220 yards to the northward of Chatte rocks; its southern limit passes over the hills on Great Miquelon.

Owing to the conformation of the land, the light in the illuminated sector is partly masked to the eastward and northward by the Calvary hills, situated near the light, and by the hills on the northern point of Miquelon road; the sector which illuminates the road diminishes in amplitude as one approaches the beach, being about $8^{\circ} 50'$ at the beach and $18^{\circ} 07'$ at the horizon.

By keeping well in the illuminated sector while entering the road, one avoids the Chatte rocks, as well as Outer Miquelon rock lying $6\frac{1}{2}$ miles further to the eastward.

Seal rocks are two groups of dangerous rocks, half a mile from each other, the highest 18 feet above high water, situated SW. $\frac{1}{4}$ W., $6\frac{1}{4}$ miles from cape Blanc, and steep to all round.

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Buoy.—An automatic whistling buoy ~~is moored two-thirds of a mile westward of the southwest rocks of the Seal group.~~

It is 8 feet in diameter, painted *black*, and ~~moored in 17 $\frac{1}{2}$ fathoms water.~~

(N.M. 292-95) ~~Approx. position. Latitude, 47° 2' N.; Longitude, 56° 32' W.~~ *W. 292-95*

Miquelon rocks are a group of rocks jutting out from Soldier point, 5 miles to the southeast of Miquelon road. The eastern and highest is $1\frac{1}{10}$ miles from the point, about 10 feet above high water, and steep to on the east side.

Miquelon bank, off the northeast end of Great Miquelon, extends N. by E. $\frac{1}{2}$ E. and S. by W. $\frac{1}{2}$ W., 3 miles. The northeastern and shoalest patch, called Outer Miquelon rock, with 11 feet on it, lies NE. by N. $2\frac{3}{4}$ miles from the eastern of the Miquelon rocks, and Landry bank, the south end, has $4\frac{1}{2}$ fathoms water on it.

CHAPTER IV.

NEWFOUNDLAND, SOUTH COAST.—MAY POINT TO CAPE RAY.

Fortune bay.—From May point to Pass island is N. by W. 35 miles, forming the entrance to Fortune bay, about 67 miles deep, containing numerous bays, harbors, and islands.

Brunet island, nearly in the middle of the entrance, about 5 miles long and 2 miles wide, is of moderate height, and the eastern part is composed of several peninsulas, that appear from some directions as separate islands. There is a fair anchorage for vessels in a bay off the east side in 14 to 16 fathoms water, with shelter from southerly and westerly winds, but some rocks should be guarded against that are off the head of the bay, a quarter of a mile from the shore. Mercer cove, on the south side of the island, affords good shelter from easterly winds in 6 fathoms water, within the islet in the middle, which may be passed on either side. On the southeast of this cove is Mercer head, a cliff-faced promontory, bold-to.

Light.—On Mercer head, from a light-house, a square white building with a red roof, is exhibited, at an elevation of 408 feet above high water, a white light showing a *flash* every *ten seconds*, visible from seaward in all directions except when obscured by the land between the bearings E. and SSE. In clear weather the light should be seen from a distance of 25 miles.

Little Brunet islands are a group lying close off the west end of Brunet island. The whole may be approached within a quarter of a mile.

Plate islands are three rocky islets of a moderate height, the nearest of which lies SW. $3\frac{1}{2}$ miles from the west end of Brunet island. The southernmost is $1\frac{1}{2}$ miles farther south, in a direct line between May point and Pass island, 17 miles from the former.

A rock, on which the sea breaks, lies E. $\frac{1}{2}$ N. a quarter of a mile from the northern Plate island.

Sagana island, NE. $\frac{1}{2}$ E. $5\frac{1}{2}$ miles from Brunet island, is about a mile in diameter, of moderate height and steep-to. On the west side is a small inlet, fit for fishing vessels only, with a sunken rock in the middle of the entrance, that makes the passage difficult except in very fine weather. A bank, with 14 to 20 fathoms, extends westward 7 miles from this island.

The general appearance of the land on the north side of Fortune bay is barren and rugged, the hills rising abruptly from the sea, while that on the south side consists of smooth slopes from hills lying some distance inland.

The currents are irregular in this bay, especially in the neighborhood of the Plate and Brunet islands. At night or in thick weather, too much dependence should not be placed on the soundings in this bay, as the water is often as deep near the shores as in the middle of the bay.

May point, the south extreme of Fortune bay, may be recognized by a large black hummock nearly joined to and a little higher than the land near it. Three sunken rocks lie about a quarter of a mile from this hummock, over which the sea nearly always breaks. Little Dantzic cove lies N. $1\frac{1}{2}$ miles from May point, and 2 miles beyond is situated Great Dantzic cove, the north point of which is Dantzic point.

Fortune head is NE. $6\frac{1}{2}$ miles from Dantzic point, the coast between being moderately high and steep-to.

Fortune is situated ESE. $1\frac{1}{2}$ miles from Fortune head. The road off this village has anchorage in 10 to 6 fathoms water, but the holding ground is very bad, the bottom of smooth rock. The best holding ground is well over towards Fortune head in 7 fathoms, but should only be used as an anchorage in fine weather. Abreast the village is a shallow basin that fishing vessels can enter at a quarter flood.

Jerseyman bank lies 5 miles northwest of Dantzic point, extends in a general direction N. and S. 10 miles, and has on it 20 to 25 fathoms water.

Cape Grand bank, NE. 3 miles from Fortune, is high and steep. Ship cove is immediately east of this cape, and affords good anchorage for small craft that go inside the bar, but is exposed for large vessels that may find temporary anchorage in 8 to 10 fathoms. A small stone cairn stands on this cape. The village of Grand bank is situated $1\frac{1}{2}$ miles southeast of the cape.

From cape Grand bank to point Enragée is NE. $\frac{1}{2}$ E. 25 miles. The coast between is low, and forms a semicircular bay with several sandy beaches, sheltering bar harbors fit for boats only.

Great Garnish, the principal of these, lies 15 miles to the eastward of cape Grand bank, and may be recognized by several rocks above water, lying 2 miles off shore. The northern are steep-to, but between them and the coast are several dangerous rocks below water.

Frenchman cove is situated east of the rocks off Great Garnish, and affords fair anchorage for small vessels in 4 or 5 fathoms water. To enter, keep east of the northern rocks off Great Garnish, between them and some lower rocks lying east of the cove, but nearer the former to avoid a sunken rock that lies nearly midway between the two groups of rocks.

Little Garnish, a small boat harbor, lies $2\frac{1}{2}$ miles northeast of Frenchman cove.

Light.—From a beacon tower of wood supporting an octagon, painted red and white, at an elevation of 20 feet above the sea, erected at the entrance to Little Garnish, is exhibited a *fixed red* light. This light is only intended for the fishing craft of the locality.

Point Enragée is low, but with higher land behind. It may be recognized from the southward by two green mounds that lie near the shore, but are not to be distinguished when against the background hills.

A sunken rock lies quite close north of the point.

Grand Jervey cove lies NE. $\frac{1}{4}$ E., 9 miles from point Enragée, and from it the coast trends NE. by E. $\frac{1}{4}$ E. 23 miles to the head of the bay. The coast in general along this portion of the bay is high, bold-to, and uneven, with many hills and valleys, down which course fresh water brooks.

Langue de Cerf cove is 8 miles to the eastward of Grand Jervey, and affords temporary anchorage in 9 fathoms water. A rock, under water, lies off the extreme of Eagle point, the east side of this cove.

Jack Fountain cove lies immediately east of Eagle point, and is bounded on the eastward by a peninsula with an islet off the east extreme.

Jack Fountain rock lies almost midway between the entrance points of this cove.

The peninsula bounding Jack Fountain cove on the east, appears as an island, the neck of land joining it to the main being very low and narrow. A shoal extends a short distance from the southwest extreme, and Cuff rocks lie near the extreme northwest angle. There is also a shoal near the east extreme.

Bay l'Argent lies immediately east of Cuff rocks; it is sheltered from all winds, but the water is deep—15 to 43 fathoms.

East Bay, lies immediately north of bay l'Argent, and may be recognized by Boat rocks, resembling a boat under sail, lying in the entrance.

A mile inside of Boat rocks the bay divides into two arms, one extending 1 mile east, and the other 2 miles northeast. Little harbor, of small extent, is situated on the north side of the northeast arm $\frac{3}{4}$ of a mile from the head, and Lower Little harbor, encumbered with shoals, is situated at the head of the eastern arm. A rock lies $\frac{1}{2}$ mile NNE. of Little Bay point, which separates the two arms, and a shoal with 6 fathoms lies N. $\frac{1}{2}$ E. $\frac{3}{4}$ of a mile from the same point. A rock lies off the entrance to Little harbor.

Anchorage may be had at the head of either arm of East bay.

Mille harbor, is a small cove 1 mile north of East bay entrance, affording good shelter for small vessels. There is a settlement in this cove.

Cape Mille is a high, red, barren, rocky point, 7 miles from the head of Fortune bay. The width of the bay at this cape is $1\frac{3}{4}$ miles, but opens out to double that breadth immediately west of the cape.

The coast east of this on both sides is high with steep cliffs.

At the head of Fortune bay the shore is steep-to and free from danger; there is a large settlement, off which anchorage may be obtained in from seven to nine fathoms, with a conspicuous red house bearing SE. $\frac{1}{2}$ S.

Grand le Pierre harbor, on the north side of the bay, 2 miles from the head, is a good harbor, with anchorage in 8 to 4 fathoms, and no danger in the approach.

English harbor, with anchorage in 3 to 4 fathoms water, is situated $4\frac{1}{2}$ miles west of Grand le Pierre. Pays cove lies about midway between.

Little bay de l'Eau is $1\frac{1}{2}$ miles southwest of English harbor; it is 1 mile deep, but the best anchorage is just within the entrance in 9 fathoms. A shoal extends a short distance from the east entrance point.

The coast from Little bay de l'Eau trends SW. for 2 miles to New harbor and is foul throughout.

New harbor is a small cove affording shelter from off-shore winds.

Two miles west of New harbor is Femme or Story harbor and midway between is Chiffy cove.

Femme or Story harbor is protected by two large and several small islets, the largest and southernmost called Petticoat island, and the other large one Smock island.

The best passage in is northwest of Petticoat island, between it and Smock island. The passage north of Smock island should not be attempted. As soon as the harbor begins to open, keep Smock island close on board to avoid sunken rocks that lie near an islet, between the north-east point of Petticoat island and the main, and another rock, that covers at high water, off the east side of the harbor. When these dangers are passed, keep mid-channel to the head, a fine basin with anchorage from 16 to 6 fathoms, sand and mud. A shoal with $4\frac{1}{2}$ fathoms lies off the SW. end of Petticoat island.

Druid rock.—This rock has a depth of two feet at low water springs, is about 50 yards in circumference, and lies nearly in mid-channel between the entrance points of Story harbor.

The entrance of Story harbor is scarcely 400 yards wide, and it is recommended that to clear Druid rock vessels should keep close to East

point, which is steep-to, taking the precaution of temporarily marking the rock.

A mile west of Story harbor is a bay, 1 mile deep, and clear of dangers, except a rock known as Shag rock $\frac{1}{4}$ of a mile from the east entrance point.

Three small settlements, known as Great Conne, Little Conne, and Trammer, are situated on the shores of this bay.

Long harbor, 4 miles west of Story harbor, may be recognized by Gull island at the entrance, and Black rock like a boat half a mile south of the island. The harbor extends NNE. $\frac{3}{4}$ E. 15 miles, with an average breadth of three-quarters of a mile.

There is a passage in on either side of Gull island; the western is the broadest, nearly in the middle of which, southwest of Gull island, is a ledge with 12 feet water.

The rocks, which cover at high water, situated in the passage east of Gull island, are reported to lie at a distance from the shore considerably more than 400 yards and greatly contract that channel. If entering by the eastern passage, a vessel should keep close to Gull island.

The western entrance is safer, and by keeping near the western side the sunken danger in mid-channel will be avoided.

Anchorage.—Captain R. W. Meade, U. S. N., found a number of excellent anchorages in Long harbor.

One good anchorage, much resorted to by the fishermen, is Woody island anchorage, near Tickle point. This anchorage is out of the strength of the tide, is $4\frac{1}{2}$ miles from the entrance to Long harbor, and has a moderate depth of water, and good holding ground.

Inside of Woody island there is a fine basin for small vessels which can go up to the wharf constructed there. There is no settlement at Woody island, and only two houses on Tickle point beach.

Above Tickle point there is another good anchorage, also out of the tide, with moderate depth of water and perfect shelter.

The local fishermen report that there are several other anchorages in Witch Hazel bay, near the head of the harbor.

The *Vandalia* anchored off Woody island, near Tickle point, in seven fathoms water, with Tickle point bearing NNE. $\frac{1}{2}$ E., and the center of Woody island SSE. $\frac{1}{4}$ E.

Tides.—The tide runs past Tickle point with considerable strength, possibly at times three knots.

At Woody island the greatest velocity of the ebb observed was $1\frac{1}{2}$ knots and of the flood $\frac{3}{4}$ knots per hour.

Between the west point of Long harbor and Chapel island, W. by S. $9\frac{1}{2}$ miles, is the entrance to Belle bay, running inland northwest 17 miles to Salmon river at the head, and containing numerous islets and islands.

Hare harbor lies northwest of the west point of Long harbor, northeast of some islets, and is fit only for boats.

A sunken rock lies nearly a quarter of a mile west of the southern islet.

Long cove lies just north of Hare harbor.

Mal bay, 2 miles north of Hare harbor, extends in a northeast direction 5 miles, and has no anchorage, except near the head, where the bay is narrow.

Rencontre islands are situated immediately north of Mal bay, the largest of which is joined to the main at low water.

Southern harbor runs into the west part of this island, but is exposed to southerly winds and narrow.

Good anchorage may be had east of the isthmus joining the large island to the main, sheltered by the two smaller islands east of it, and should be entered by keeping mid-channel between the islands and the main. There is also anchorage in 13 fathoms eastward of Stage Point.

Isle à Chi lies midway between Rencontre islands and the entrance to Belle harbor.

Belle harbor, NW. by W. $3\frac{1}{2}$ miles from Rencontre islands, is $2\frac{1}{2}$ miles deep, and about a third of a mile broad. The entrance is faced by an island, sheltering a cove on the east shore, where small vessels can anchor, but large vessels must go to the head. The passage is west of the island at the entrance.

The head of this harbor should be approached with caution, as the water shoals suddenly. Anchorage can be obtained in from 17 to 8 fathoms.

The north shore of the anchorage at the head of the harbor consists of a peninsula, and vessels should anchor between two rises of land on this peninsula; the eastern of these is a remarkable black cliff; vessels should not proceed eastward of it.

Nearly 3 miles from Belle harbor is a long promontory, that with a large island forms Lally cove and Lally back cove. Both these are fit for boats only, but vessels may find temporary anchorage off the latter in 14 to 16 fathoms.

East bay, wide and open, is situated north of Lally back cove.

North bay is narrow and tortuous, and exposed to southerly winds. At the head of this bay is a large river where salmon may be had.

Cinq isles bay is to the southward of North bay, and is so called from five islands lying in it. It is square in shape, and a small inlet containing an island extends from the north side, at the head of which is Salmon river. Small vessels may anchor in this inlet. At the west side of the bay anchorage with fair shelter may be had in large vessels, but

care should be taken of a shoal lying a quarter of a mile from the river mouth, at the bottom of the bay.

Anchorage in seven fathoms was obtained by the *Contest* in North East river, but the entrance is too narrow to admit of a large vessel entering.

Corbin head is a promontory, steep and bold to the eastward, forming the south side of Cinq isles bay, and the north of Corbin bay. It is only $1\frac{1}{2}$ miles from Lally cove head on the opposite side of the bay.

Corbin bay is divided into two arms by a peninsula, on the east side of which is an islet, and contains good anchorage for vessels in 20 fathoms water.

Lord and lady island, nearly half a mile from the east point of Corbin bay, is steep-to on the east side.

A rock, that covers at high water, lies a quarter of a mile north of this island, and a sunken rock on which the sea breaks in bad weather lies N. by W. $\frac{1}{2}$ W. about half a mile distant.

Thrum cap, a small steep island, lies east of Lord and lady island.

Dog and Belle islands lie in line between Lord and Lady island and the entrance to Belle harbor. An islet lies south of Dog island, and a bank with 22 fathoms water at the outer end extends 2 miles to the southward of it.

Dog island bank, with 9 feet over it, lies SW. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles from Dog island.

Long island, $1\frac{1}{2}$ miles long northeast and southwest, is separated from Lord and Lady island by a channel half a mile wide, at the west end of which is an islet.

Chapel island, $2\frac{1}{2}$ miles in length and $1\frac{1}{2}$ miles in breadth, is $\frac{1}{4}$ of a mile south of Long island, high and bold-to on all sides but the north. The channel between this and Long island is foul. Northwest of this island on the main is a small harbor into which boats can go at a quarter flood.

Belloram or Bande de l'Arier harbor, west of Chapel island, may be recognized by Iron head, a high bluff, rising almost perpendicularly from the sea north of the harbor. At the south end is a semicircular beach, that forms a snug harbor for small vessels, with 5 fathoms water in it.

Light.—At the north point of this beach stands a wooden tower, painted white, from which is exhibited a *fixed* white light, at an elevation of 35 feet above high water, visible in clear weather 7 miles.

Anchorage for large vessels may be had north of the light-house in 13 to 20 fathoms, but heavy squalls are experienced from NW.

Belloram bank, with 12 fathoms water, lies SE. $\frac{3}{4}$ S. $2\frac{1}{2}$ miles from Belloram light-house..

St. Jacques island, consisting of two hummocks joined by a low neck, is situated south of Belloram 3 miles, and may be approached within a short distance all round.

St. Jacques harbor, lies immediately northwest of the island, and is free from danger, except a small shoal spit off the east point. Anchorage may be had with good shelter in from 17 to 4 fathoms water. Vessels anchoring in the northwest part of this harbor should not proceed within a depth of nine fathoms, as in shoaler water the bottom is rocky, with kelp.

Blue Pinion harbor, a little more than $1\frac{1}{2}$ miles west of St. Jacques harbor, is 1 mile long and $\frac{1}{3}$ of a mile broad. Off the west side near the head a shoal stretches out 300 yards.

Anchorage may be obtained at the head, nearer the east shore, to avoid this shoal, in 15 to 5 fathoms, but the harbor is exposed to southerly winds.

From Blue Pinion harbor to Boxey harbor the coast is composed of three coves, exposed to southerly winds, off the dividing points of which are some islets.

Boxey harbor, NNE. 3 miles from Boxey point, and $3\frac{1}{2}$ miles west of Blue Pinion harbor, is small and barred by a shoal with 3 fathoms water. When inside, anchorage may be had in $4\frac{1}{2}$ fathoms, fine sand. The best channel in will be found by keeping Boxey point a little open east of Friars head, which is about a mile north of it.

Boxey point is a promontory, nearly 3 miles long, of moderate height, and can be recognized from a considerable distance. Sunken rocks lie off the extremes of the point, that should not be approached within a quarter of a mile.

Boxey rock.—This sunken danger lies E. $\frac{1}{2}$ S. from the islet off Boxey point, distant $1\frac{1}{2}$ miles. There is a depth of 5 feet on this rock with deep water close to.

Vessels should not pass between Boxey rock and the main, as a sunken danger, which breaks with a moderate sea, lies about 300 yards from the point northwest of the rock.

St. John's island, a mile west of Boxey point, is of moderate height and foul on the east and south sides.

St. John's head is a promontory NW. by W. 3 miles from Boxey point. Between them is St. John's bay, unfit for ships, at the head of which is a boat harbor. St. John's head is high and cliffy and forms the east point of Great bay de l'Eau. On the north side of the head are Gull and Shag islands, three quarters of a mile from the shore, near which are sunken rocks. A bank extends a short distance north of these islands,

Great bay de l'Eau runs into the northeastward, 10 miles from St. John's head. Devils island lies 5 miles within this head, forming two channels, the western of which is barred by a bank with 12 feet water. The east channel is clear. Anchorage may be had north of the little islet off Devils island or at the head of the bay.

Barasway bay is situated N. by W. $\frac{3}{4}$ W. $3\frac{1}{2}$ miles from St. John's head. A rock lies off the west point of the entrance, and the head branches in two arms. Anchorage may be had on the west side of this bay in 7 to 10 fathoms.

Bungay rock, with 8 fathoms over it, lies $\frac{1}{2}$ mile south of the entrance.

Water and wood may easily be obtained here.

Job rock, covered by 7 fathoms water, lies E. by N. 1 mile from eastern head.

Harbor Breton is situated immediately west of eastern head of Great bay de l'Eau, off which there is a rock. The bay runs in a northeasterly direction 8 miles, with two arms on opposite shores $1\frac{3}{4}$ miles within the entrance.

The west arm or Harbor Breton proper, where the settlement is situated, runs SW. 1 mile, and then bends sharply to N. and NE. This arm is navigable for half a mile only, and a shoal stretches off the south shore west of the first wharf.

Light.—On rocky point, the southeast point of this arm, is exhibited a *fixed white* light, elevated 68 feet above the sea and visible 12 miles. It is obscured in the direction of Harbor rock, which bears NNE. from the light-house, distant 230 yards.

The light-house, circular in shape, and constructed of iron, is painted *red and white in alternate horizontal bands*.

Position: Latitude, $47^{\circ} 27' 30''$ N.; longitude, $55^{\circ} 47' 45''$ W.

Harbor rock is the extreme of a rocky ledge extending from Rocky point NNE. 230 yards. A shoal with 12 feet water lies NNW. 670 yards from the light-house and 300 yards from the eastern wharf. Between this shoal and the north shore is an iron buoy for warping vessels to the wharf. The best anchorage is near the north shore, outside the buoy, in 18 fathoms, and plenty of cable should be given to secure the vessel against dragging with the heavy squalls that sweep this anchorage with strong breezes even in summer.

This harbor will not hold many large vessels, as the water is deep immediately after the mouth of the west arm is passed to the northward.

Buoys.—Two mooring buoys, painted *red*, are moored in Harbor Breton at about 30 yards from the pier-heads of the wharf on Thompson beach.

The eastern buoy is in 9 fathoms water and the western in 3 fathoms; they bear from each other NE. $\frac{1}{4}$ N. and SW. $\frac{1}{4}$ S., distant 200 yards.

Jerseyman harbor, the eastern arm, may be easily recognized by Jerseyman head, a remarkable red cliffed promontory that forms the west side of the harbor. This inlet is $1\frac{1}{2}$ miles long and $\frac{1}{3}$ of a mile wide, containing excellent anchorage for small vessels in 7 fathoms; the entrance is barred by a shoal with $3\frac{1}{2}$ fathoms on it at low water.

To lead in the deepest water over this bar, keep Thompson beach, the south point of the western arm, open of Jerseyman head, until the harbor is open, when anchorage may be had as convenient.

The holding-ground in this harbor is very good.

The coast to the west of harbor Breton is foul and rocky, forming a bay, from the shores of which a bank stretches more than 2 miles, on portions of which the sea breaks in gales.

Connaigre head, cliffy and bold, is a long promontory forming the south side of Connaigre bay.

Connaigre shoal, with 12 feet water, lies S. by W. 2 miles, and a shoal with 10 feet water S. $\frac{3}{4}$ W. 3 miles from Connaigre head. Between the latter and the north end of Sagona island, two shoals with 6 fathoms water are said to exist.

Connaigre bay runs in ENE. 13 miles from the head, and contains several islets and inlets. In the middle nearly of the mouth of the bay are Connaigre rocks, bold to all round; the channel between them and Connaigre head is the safest, as a ledge of rocks extends a mile from the north shore.

Connaigre harbor is small, with 7 fathoms water on the south side of the bay, $4\frac{1}{2}$ miles within the head. An island lies near the north side with no passage between it and the main. To enter, pass south of this island.

Great and Little islands are west of the harbor in the middle of the bay, and some rocks lie southeast of Great islands.

Dawson cove, on the north side of the bay, lies N. $\frac{1}{4}$ W. 4 miles from Connaigre head. Anchorage may be obtained in 6 fathoms, but quite exposed to southerly winds.

From this cove to Basse-terre point the shore is foul a mile off.

Basse-terre point, forming the west point of Connaigre bay, lies WNW. $\frac{3}{4}$ W. 7 miles from Connaigre head. It is bare, moderately high, and steep to as far as Pools point, east of Pass island, off which reefs extend southwest about 400 yards.

Pass island, the dividing point of Fortune and Hermitage bays, is $1\frac{1}{2}$ miles long and $\frac{1}{2}$ mile wide, about 200 feet high, and separated by a channel a quarter of a mile wide from the shore. Off the southwest side a group of islets extends fully a mile, and a rock that breaks lies a quarter of a mile west of the north end. When proceeding through the narrow channel between Pass island and the main the deepest water

will be found by keeping close to the western shore; the least depth found in this channel was 3 fathoms.

The soundings near the eastern side of the channel are very irregular, and foul ground appears to extend from the mainland.

Anchorage with off-shore winds may be had in 6 fathoms, sand, off the cove in the middle of the island, but there is no shelter from southerly winds.

Light.—Two lights, placed vertically, are exhibited from a light-house on Pass island.

The high light is *fixed white*, elevated 281 feet above high water, and should be visible in clear weather from a distance of 19 miles.

The low light is *fixed red*, elevated 267 feet above high water, and visible through an arc of 136° , or between the bearings E. by N. and NW. by W. $\frac{1}{4}$ W. (covering the area included between the shoal ground off Wolf rocks and Basse-terre point).

The light-house, with dwelling attached, is constructed of *wood* and painted *white*.

Position, approximate: Latitude $47^{\circ} 29' 15''$ N.; longitude $56^{\circ} 12'$ W.

These two lights appear as one at the distance of $4\frac{1}{4}$ miles.

Hermitage bay.—The entrance to this bay is between Pass island and Crooked island at the west entrance of the Bay of Despair. It runs in almost a straight line ENE. nearly 23 miles, with deep water to near the head.

Fox islands consist of two islands with two rocks between them, and are situated three-quarters of a mile from the south shore, 10 miles nearly east of Pass island. Several rocks lie off the north side of the western and largest island, and a sunken rock off the southeast side, which uncovers at half ebb. Beyond these islands Hermitage bay narrows to a mile in width. A reef stretches off the eastern island.

Hermitage cove, south of Fox islands, is three-quarters of a mile deep and 800 yards broad. To enter, give the islands a wide berth, keep the main shore on board, and anchor as convenient in 22 to 10 fathoms. The squalls are heavy here, and great care is necessary in boat-sailing.

Good anchorage may be obtained in 10 fathoms, sandy bottom, with the church bearing SW. by S.

Long island, separating Hermitage bay from Despair bay, is of a triangular form, the base towards the east, the sides being nearly 8 miles long. It is high, barren, and rugged, with many valleys intersecting the hills, and is separated from the main by Long island passage, a deep and narrow channel containing several islets and sunken rocks. Four harbors lie on the south shore of this island with their entrances towards Hermitage bay, and two anchorages on the north side opening into Despair bay. A rock above water and bold to all

round lies SW. from the southwest point of Long island, distant half a mile; a shoal with 7 fathoms water lies half a mile south of this rock.

Gaultois, the eastern harbor, on the south side is small, and has some islands near the east point of the entrance. The anchorage within affords fair holding ground in 15 to 24 fathoms. There is a depth of 9 fathoms close to the western entrance point, but nearer the outer rock four fathoms will be found. An establishment for boiling down whale oil is situated upon the island in the cove, about 15 yards westward of which is a sunken rock, having 8 feet over it at low water.

There are moorings laid down, with a buoy attached; the bridle is laid from the island to the opposite shore. Vessels anchoring must be careful to avoid fouling the moorings.

The coasting mail steamer calls here alternately with Great Jervis harbor.

Picarre, $1\frac{1}{2}$ miles west of Gaultois, affords good shelter off the first cove on the east side in 9 fathoms water, is about a mile long and a quarter of a mile wide. In entering, keep the west point on board to avoid a ledge of rocks off the east point of the entrance.

Round harbor, about 2 miles to the westward of Picarre, has a narrow channel in, and is only fit for small vessels, which can obtain anchorage in 6 fathoms.

Long Island harbor, $1\frac{1}{2}$ miles west of Round harbor and $2\frac{1}{2}$ miles from the west point of Long island, is distinguished by an island off the entrance and several islets lying off it.

The entrance may be approached on either side of this island. The harbor branches in two arms, both of which are narrow, and afford anchorage only at the heads. A rock lies two-thirds up the north arm, so that the east is the best for anchorage.

Despair bay is entered between Long island and Great Jervis island, both prominent bluffs, easily recognized from seaward. The bay divides into two arms, the eastern running up 22 miles and the northern 15 miles. Off the west point of the entrance are several islands. The land in this neighborhood is hilly and barren, but at the head of the bay it becomes flat, with abundance of wood.

Frenchman harbor is the only safe anchorage of the two on the north shore of Long island, and is situated $2\frac{1}{2}$ miles east of Eagle island, a small island near the shore of Long island. The west point extends in a reef 400 yards. An islet lies near the east point, southwest of which 200 yards lies a sunken rock. Anchorage in 13 fathoms may be had just within the entrance.

Caution.—In going to this harbor, care must be taken to avoid a rock off the cove next west of Frenchman harbor, lying a quarter of a mile off shore.

Fox island lies off the northeast point of Long island, between which there is a good passage.

Bois island, at $5\frac{1}{2}$ miles from the entrance, forms two channels to the head of the eastern arm. The northern is free from danger and carries deep water in mid-channel.

Snook harbor, available for boats only, is situated on the south shore of this island, north of the northeast point of Long island.

Little river lies opposite the east end of Bois island, with several islands at the entrance. It is narrow and shallow.

Rotte bay, lying north of the east end of this island, runs in northwest $2\frac{1}{2}$ miles, and affords good anchorage in 14 fathoms. A reef lies in the middle of the bay.

Ship cove is on the west side 5 miles from isle of Bois, and is free from danger, affording good anchorage in 8 fathoms, with the center of the settlement NW. $\frac{3}{4}$ W.

Caution.—Heavy squalls are experienced in this cove, necessitating care when sailing in boats.

Tides.—It is high water, full and change, in Ship cove at 9h. 15m. (approx.); springs rise 6 feet; in mid-channel, eastward of Ship cove, the tidal stream attains the velocity of $1\frac{1}{2}$ knots an hour.

Supplies of fresh beef and vegetables may be had here occasionally.

Conne river lies on the east shore opposite Ship cove.

A telegraph station and a large Indian camp are situated on the north side of the stream.

Gobling bay, on the east side of the entrance to the northern arm, is exposed and deep. A little cove is situated on the north side within some islets.

East bay lies 4 miles, nearly, within the northern arm. At the entrance is Marble island, nearly joined to the main by an islet, from which a reef stretches north a short distance. From this island, East bay runs in 7 miles with deep water to an islet $3\frac{1}{2}$ miles from the entrance, off which are 8 fathoms.

At about three-quarters of a mile above this islet there is a remarkable white patch on the cliffs of the north shore, and on the south shore there is a waterfall.

There is good anchorage between the islet and the white patch, but above this the water shoals suddenly to a depth of 14 feet, and continues to shoal to the head of the bay.

Landmark.—A conspicuous isolated crag of about the same height as the surrounding hills (500 to 600 feet) is situated on the south side of this bay, close within the entrance.

Water can be procured from a cove on the north side of East bay.

North bay runs in 9 miles from Marble island, with deep water and no anchorage till near the head. The western entrance point of this bay is bare and marked on its southern face by a conspicuous white patch. H. M. S. *Druid* anchored at the head of this bay in $6\frac{1}{2}$ fathoms, mud, just south of Indian point (on east side).

On the western side of the bay, opposite Indian point, is situated a point, which is steep-to, with a hut on it.

Good anchorage in 4 to 5 fathoms, mud, may be obtained north of Indian point, but large vessels should not proceed north of a line joining Indian point with the point on the western side.

A telegraph station is established at the head of North bay.

Cascade cove, northwest of Marble island, has in it 7 fathoms of water.

Dead Lobster bay, lying south of Cascade cove, is entered south of an island lying close to the north shore. An islet lies in the middle of the bay farther up, west of which anchorage may be had in 7 fathoms.

Southwest coves are two in number, both small, lying south of Dead Lobster bay; they are exposed to easterly winds.

Old Harry bay is next north of Great Jervis harbor. There is no danger in going to it, and good shelter may be obtained in 16 fathoms in Indian cove, on the SW. side, but care should be taken in approaching, as the water shoals rapidly.

Great Jervis harbor lies immediately within the west point of the entrance to Despair bay. Great Jervis island forms two channels to the harbor, one on each side of it.

The south channel is deep and clear of danger. Fishes-nose point, lying west of the island, divides the anchorage; the southern portion, called Push-through, has excellent anchorage in 11 fathoms, mud, with the houses at Shallop cove north of Great Jervis island just touching Fishes-nose point, off which is a small rock, and the brook at the head of Push-through W. by N. The northern anchorage is the larger, but in going to it from the south, a berth should be given to the west end of Great Jervis island to avoid some reefs off it. Pearl island is situated at the north end of this anchorage, and is connected by shoals to the mainland north of it.

The channel north of the island has several dangers in it.

A reef, that covers at half-tide, lies nearly in mid-channel off the north-west point of Great Jervis island, leaving only a narrow channel on each side, and shoals extend some distance from the north shore.

The flood stream sets through the north channel, and out by the south, at times with such velocity that boats can scarcely pull against it.

The harbor entrance is difficult to distinguish until abreast it, as the

low peninsula forming the south side is hidden under the higher land of Great Jervis island.

Saddle island, at the entrance of Despair Bay, is high and may be readily recognized.

Black rock.—The low islet situated eastward of Saddle island is locally known as Black rock, and the small islets southward of Saddle island at Mark rocks.

Mark rocks may be approached within 50 yards on their southern sides, but between them and Black rock there is a breaker.

Crooked or Middle island lies about $\frac{1}{2}$ mile southwest of Saddle island, and off it are also some islets. This island forms the west point of the entrance to Despair bay.

There is a clear passage between these islands and the main.

Great or Tyler island, $\frac{1}{2}$ mile west of Crooked island, lies in the middle of the entrance to Bonne bay. It is higher and larger than Crooked or Saddle island, and is joined to the west point of Bonne bay by shoal water; a sunken rock lies a quarter of a mile southwest of it, three islets close to the east side, and two islets off the northeast point. The southern extremity of this island is Grape head.

The sunken rock lying a quarter of a mile S. by W. $\frac{1}{2}$ W. of Grape head has over it a depth of 12 feet, and is known as Tyler rock; the rock, about 2 feet above high water, situated westward of Tyler rock, is known as Whale's Back.

Bonne bay runs in NNW. nearly 4 miles from Great island. Drake island lies near the east side, a mile within the entrance off the southwest point of a cove. Another cove lies opposite this on the west shore, off the south point of which is a sunken rock. The best passage is in mid-channel between Great and Crooked islands.

Anchorage may be had for large vessels between the islets north of Great island, or north of Drake island in 20 to 30 fathoms, or near the head in depths as convenient, but small vessels may anchor in either cove near Drake island.

Mosquito cove lies immediately west of Bonne bay. It is small and has deep water. Several rocks lie off the west point, and between it and the entrance to Facheux bay, and an islet lies nearly a mile southwest of the west point.

Facheux bay is $2\frac{1}{2}$ miles west of Mosquito cove. The entrance is very remarkable from the sea, being between two steep falls in high hills. The bay runs in $6\frac{1}{2}$ miles, with an average width of $\frac{3}{4}$ of a mile, and has deep water throughout. On the west side are three coves that afford indifferent anchorage in 20 to 10 fathoms.

Dragon bay runs in westerly a little more than 3 miles from the entrance to Facheux bay, and is narrow and deep throughout, with no anchorage.

The south point of the entrance to this bay is *red* rock, the north point being *gray* rock, having a cave.

Little hole lies $\frac{3}{4}$ of a mile west of Dragon bay, and has shelter for small vessels.

Richards harbor, 3 miles to the westward of Facheux bay, is about a mile deep, and affords good anchorage for small craft in 20 to 23 fathoms.

Hare bay, lying 4 miles to the westward of Richards harbor, runs in nearly N. 5 miles, being a third of a mile wide at the entrance and expanding at the head in two arms. The land is high on each side of this bay, and the water deep to near the head.

On the east entrance point is a rock of peculiar form, known as the Devil's Forehead, from its resemblance to a man's face.

Anchorage may be had in a little cove on the east side, a mile within the entrance, in 20 fathoms for small vessels, or at the head in 8 to 15 fathoms.

Red point, so called from the color of the cliffs, is situated $4\frac{1}{2}$ miles west of Hare bay, and E. three-quarters of a mile from Devil bay.

A bank, with 8 and 9 fathoms, lies close south of this point.

Devil bay, $5\frac{1}{2}$ miles west of Hare bay, runs up $2\frac{3}{4}$ miles, with a slight bend. There is deep water to the head, where anchorage for small craft may be had in 7 fathoms close to the shore. Within the entrance on either side is a waterfall, and on the west side, Blow-me-down, a steep bluff 1,280 feet high.

The coast between Devil and Little bays is lined with steep cliffs, smoothed probably by glacial action. About midway is a deep cove with a stream falling into it.

Rencontre bay runs 3 miles in a westerly direction from Devil bay, and then takes a sudden bend N. 2 miles to the head. The east shore is steep-to.

Little bay, on the northeast shore of Rencontre bay, is entered on the east side of Ironskull, a conspicuous hill 1,077 feet high, with a remarkable white spur that shows plainly from the southward. This bay extends N. $1\frac{1}{2}$ miles nearly, but the water is too deep for anchorage. Just over the head is Sugar loaf, a remarkable hill 1,290 feet above high water.

New Harbor island, 110 feet high, marks the west entrance of Rencontre bay, is grass-covered over dark cliffs and steep-to on the south

and east sides. The channel between it and the main is blocked by peaked rocks, and reefs lie in the cove between the island and Barley point.

High look-out is a peninsula 185 feet high on the southwest shore, $1\frac{1}{2}$ miles within New Harbor island. It extends to the northward in a low point, on which stands the church, a conspicuous white wooden building, 40 feet above high water. On the east side is a beach of shingle, skirted by houses.

Rocks lie 100 yards off all the spurs of High Look-out.

The Cove lies on the west side of High Look-out. There are several houses at high-water mark, from which sand dries 100 yards, the débris left by a river that drains the valley between Chaleur and Rencontre bays. A merchant's house with a flagstaff is built on the west side. Anchorage for small vessels may be had in 17 fathoms, 300 yards from the shore, but it is unsafe in northeast winds, when terrific squalls sweep down the bay over the high hills surrounding it.

Tides.—It is high water, full and change, in the Cove at 8h. 55m. Springs rise $6\frac{1}{2}$ feet and neaps $4\frac{1}{2}$ feet.

Barasway lies W. three-quarters of a mile from the Cove. It is faced by a shingle beach 600 yards long, and backed by deep ravines in the hills, down each of which a streamlet flows. Anchorage may be had in 10 fathoms, 300 yards off this beach.

Loo rock, a granite boulder 6 feet above high water, lies half-way between the Cove and Barasway. Water may be procured in abundance just inside this rock.

St. Ilians, a perpendicular cliff 1,030 feet high, lies N. nearly a mile from Barasway. It is the west side of the narrow entrance to the bend in Rencontre bay, at the head of which anchorage may be had in 18 to 11 fathoms.

Water may be obtained at many places, and wood at the head of Rencontre bay.

St. Albans is a remarkable cliff 1,215 feet above high water, situated NW. by N. half a mile from High Look-out.

New harbor, southwest of the island of that name, is $\frac{1}{2}$ mile deep, and 400 yards wide at the head. There is anchorage in 15 fathoms, 200 yards from the head, though exposed to southerly winds, but small vessels may find good shelter in 5 fathoms, off a small cove east of the head containing a few houses. The east point of the harbor is a conical hill 223 feet high. On the neck between it and the main stands the church, a white wooden building.

The coast from New harbor trends SSW. 800 yards to Pinch-gut point, the base of a wooded hillock 250 feet above high water.

Hare's ears point, southwest three-quarters of a mile from Pinch-gut point, is so called from two peaked rocks off the extreme with a hole through between them, the inner 84 feet above high water. It is the termination of a wooded spur, sloping from shingle-faced hills 833 feet in height. Between Pinch-gut and Hare's ears points are coves faced by conical islets.

Lower rock, with 2 feet water on it, lies ENE. 1,100 yards from Hare's ears point, and 150 yards off a low black rock close to the shore.

Hare's ears rock, with 5 feet water on it and 15 fathoms close to the southward, lies E. 400 yards from Hare's ears point.

Lance cove, west of Hare's ears point, is 1,200 yards wide and 1,000 yards deep, narrowing to a cove with a shingle beach. Off the east point is an islet about 40 feet above high water, with a hole through the north side. Anchorage may be had with shelter from off-shore winds for small vessels in from 6 to 3 fathoms at 250 yards from the beach.

Lance cove point is a promontory 255 feet high, dividing Lance cove on the east from Chaleur bay on the west. It falls in steep cliffs on both sides and ends in a sharp point. Off it on the cove side is a rock 2 feet above high water close to the shore.

Chaleur bay runs $5\frac{1}{2}$ miles in a northwesterly direction with one bend. At the entrance it is 600 yards wide, but expands to 1,200 yards within, narrowing gradually to the head. The sides slope abruptly from hills ranging from 1,200 to 600 feet high, and after passing a prominent point on the west side $2\frac{1}{2}$ miles within the entrance, consist of cliffs, with deep ravines and numerous waterfalls.

Gull island, three-quarters of a mile from Lance cove point, marks the east side of Chaleur bay. It is white, 102 feet high, and separated from the shore by a channel 70 yards wide. Immediately north of it is a cove 400 yards deep, from which a valley extends to Rencontre bay, the hills on the north side being 1,100 feet and on the south side 900 feet high.

The narrows of the bay lie NW. half a mile from Gull island. Off the east point a rocky spit extends, with 12 fathoms water at the west extreme 200 yards from the shore; and on the west side is a gray spur, 279 feet above high water.

Shooter rock, 2 feet above high water, lies close to the east shore, 1,200 yards within the entrance.

Cooper cove lies $2\frac{1}{2}$ miles within the entrance on the west side. A brook, that drains a deep valley, flowing into it has formed a sandy beach off which, 300 yards distant, anchorage may be had by small vessels in 14 to 9 fathoms. There is a similar cove opposite on the east side, but without anchorage.

Anchorage may also be had near the head of the bay, in 6 to 15 fathoms, mud.

Wood and water can be obtained easily.

West point of Chaleur bay, W. by S. 2 miles from Hare's ears point, slopes from a double-peaked hill, the summits of which are 660 and 639 feet high. These are divided by a deep valley from a round hill 1,090 feet above high water, the slopes of which form the west side of Chaleur bay.

Francois bay (Fransway) is an inlet $1\frac{1}{2}$ miles deep and 400 yards wide, surrounded by steep bluffs. West point lies WSW. 3 miles nearly from Hare's ears point. Off it is a flat rock, 10 feet above high water, steep-to on the east side. At the head is a gap in the hills with a brook flowing through. The settlement is east of the brook and under the Friar, a cliffy eminence 680 feet above high water, with landslips extending to the water's edge.

Anchorage may be had in 22 to 14 fathoms within 400 yards of the head. Over the east point is a conical hill 750 feet above high water, and between it and the West point of Chaleur bay is a rugged rocky cove.

Brandy Head is a gray conical promontory, 278 feet above high water. Between it and Nick Power point is a cove faced by steep cliffs, and on the east side is Brandy cove, 600 yards deep, into which a brook flows from a lake in a deep hollow between hills of 1,036 feet high to the east and 820 feet high to the west, the latter conical in shape.

Nick Power point, 1,200 yards west of Brandy head, is an isolated hillock 216 feet high, terminating in rugged points running east and west, with breakers 100 yards off the west extreme.

Nick Power cove runs in three-quarters of a mile from this point, with a general width of 300 yards. At the west side of the head is a brook, off which, distant 100 yards, lies a rock that covers at high water. Anchorage may be had with shelter from off-shore winds, in 15 fathoms, east of this rock.

The Bar, with 3 fathoms water, lies WNW. $\frac{1}{4}$ W. 400 yards from the west extreme of Nick Power point, and a bank, with $7\frac{1}{2}$ fathoms, lies W. $\frac{1}{4}$ S. 350 yards from the same place.

Bagg head, 1,200 yards west of Nick Power point, and 490 feet high, is the south extreme of a high table hill 930 feet above high water. At the base are two caves called the Holes, and immediately to the eastward is a shingle beach that faces Bagg pond, the latter a mile long, nearly connecting with Aviron bay. On the east side a range of hills 800 to 830 feet high slopes steeply to the pond, and the south side is faced by cliffs 500 feet high.

Distress rock, 21 feet above high water, is a bare islet situated SW. by W. $\frac{3}{4}$ W. nearly $6\frac{1}{2}$ miles from Hare's ears point. A rock, that covers 3 feet, lies northwest 100 yards from it, and a shoal, with 12 feet water, lies 100 yards off the south side.

Aviron or Loom point, W. 400 yards from Distress rock, is the extremity of an isolated conical hill 290 feet above high water, connected by a low marsh to the mainland. From this to Styles point the coast is rugged, with deep gaps in the cliffs.

Styles point, NNW. three-quarters of a mile from Aviron point, forms the east side of the narrows in Aviron bay. It is the extremity of the steep slope of a prominent flat-topped hill 620 feet high, that is covered with shingle on the landward side.

Aviron rock, 20 feet high, lies in the middle of the entrance to Aviron bay. From it a bank extends 500 yards southeast, at the extreme of which are two shoals, with $2\frac{1}{2}$ and $3\frac{1}{2}$ fathoms water on them. A bank, with 14 fathoms water, lies between them and Aviron point.

Aviron or Oar bay runs with a slight curve in a northerly direction $3\frac{3}{4}$ miles, with a general width of 600 yards, and depths of water ranging from 86 to $2\frac{1}{2}$ fathoms. The east side slopes steeply from elevations of 800 to 1,000 feet.

Northeast cove, near the head, has anchorage in 20 to 16 fathoms. On the north is a remarkable range, Notch-block hill, 1,180 feet above high water, with a cliffy face.

The head is a basin nearly half a mile deep, entered by a narrow passage 150 yards wide, through which a depth of 15 feet can be carried.

In it is excellent anchorage for small vessels in $4\frac{1}{2}$ fathoms. On the north side is a magnificent waterfall over the slope of a hill 1,120 feet high.

Bagg cove lies immediately within the narrows on the west side, but affords no anchorage. Beyond this cove the west side is cliffy, with deep gorges in the hills.

Water may be obtained at many places in this bay, and small wood from near the head. The shores may be approached to within 100 yards.

The Friar, a castellated rock 265 feet above high water, is between the narrows of Aviron bay and Cul-de-sac bay. It is connected to the main by shingle débris. East from it is a cove with a shingle beach, down to which slopes a sharp cone 305 feet above high water.

Cul-de-sac bay, WNW., $1\frac{1}{2}$ miles from Aviron point, is $\frac{3}{4}$ of a mile deep, divided at the head into two coves by Battery point, a bare promontory 120 feet above high water. The settlement is on the east side of this point, but only small vessels can anchor off it. Large vessels

will find shelter in 5 fathoms, sand, S. by E. $\frac{1}{2}$ E., 400 yards from Battery point.

Wild cove, on the east side of the shingle beach connecting cape La Hune with the mainland, is half a mile deep. At the head is a sandy beach, 400 yards from which anchorage may be obtained, with shelter from off-shore winds, in 6 to 7 fathoms water.

PENGUIN ISLANDS.

This group occupies a space of about a square mile, and is situated SSW. $\frac{1}{2}$ W. $9\frac{3}{4}$ miles from cape La Hune. It consists of numerous islands and rocks, the highest and easternmost, Harbor island, being 78 feet above high water.

On the south side of this island is a small cove where boats find shelter, but a heavy sea rolls in with southerly winds. The passages between the islands are completely blocked for ships by the numerous rocks and shoals that encumber them and lie off the islands. The southern shoal, with 12 feet water, is 650 yards from the southern islet, and the islands should not be approached to within less than $\frac{1}{2}$ mile.

Mile rock, with 9 feet water and steep-to, is situated ENE. $1\frac{1}{2}$ miles from Harbor island.

Watch or Whale rock, awash at low water, is the summit of a bank, the 60-fathom limit of which occupies 12 square miles, containing several shoals and banks. It is situated E. $\frac{1}{4}$ N., 6 miles from Harbor island.

The following break in bad weather :

Pinnacle shoal, with 4 fathoms, SSW. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles ; and a shoal, with 6 fathoms water, WSW. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles from Watch rock.

Cape La Hune is a peninsula joined to the mainland by a shingle beach, with a castellated rock in the center ; it has three peaks, the western, a remarkable cone 579 feet above high water ; the eastern, 424 feet, terminates to the southward in Long point, a rugged, curved neck of land that forms Cape cove, an indentation 700 yards deep, with shelter in 11 to 9 fathoms water from off-shore winds.

New ground, with 13 fathoms water, lies 400 yards west of cape La Hune. A rock, with 15 feet water, lies 100 yards from the south extreme. The water deepens to 30 fathoms at 400 yards.

Grip head, N. $\frac{1}{2}$ E., $1\frac{1}{8}$ miles from cape La Hune, is a dark wooded tuft over red cliffs, 185 feet above high water, the termination of the ranges in La Hune bay.

Grip head rock, 10 feet high, lies off Grip head, and has 19 fathoms water at 200 yards distant.

La Hune bay runs up from the cape in nearly a straight line N. $\frac{1}{4}$ W. $6\frac{1}{4}$ miles, with an average width of 900 yards, to the head, at half a mile from which there is excellent anchorage in 13 to 10 fathoms, mud.

In mid-channel the depth of water ranges from 83 to 40 fathoms. The west side is steep and rugged, with deep water close-to.

On the east side the almost continuous line of cliffs, over 1,000 feet high, is terminated at the north end by Northeast cove, 600 yards deep, with a sand spit 200 yards from the south shore, and another the same distance from the head. There is good anchorage in 14 fathoms 300 yards off shore.

At the south end of the cliffs is Deadman cove, 600 yards deep, with two waterfalls on the north side, where water may be obtained easily. Anchorage can be had in 15 to 12 fathoms, good holding ground.

A valley extends from the bottom of this cove to Bagg cove in Aviron bay, on the east side of which hills slope steeply from a range 1,118 feet high.

A rock, with 15 feet on it, lies NW. by W. $\frac{1}{2}$ W. 200 yards from the south point of Deadman cove, and the shoal extends in the same direction 200 yards, with $6\frac{1}{2}$ fathoms water.

The west entrance of La Hune bay is a peninsula, surmounted by a remarkable cone 697 feet above high water, terminating in rugged cliffs at the outer coast and steep bluffs in La Hune bay, and joined to the mainland by a shingle beach.

Long point juts out from this peninsula, with a valley at the back of it. West point is the southeast extremity, and forms the entrance to La Hune bay. Off this extreme are two rocks, the southern 250 yards off, with 9 feet water, and 18 fathoms close-to.

Eastern knob, with 8 fathoms water, lies SSW. $\frac{3}{4}$ W. 600 yards from West point.

Southwest shoal, with 10 fathoms, lies SW. $\frac{1}{2}$ mile from West point. Grip head, well open of West point, leads east of this shoal.

Long point shoal, with 10 feet, lies W. $\frac{1}{2}$ N. 600 yards from Long point.

Tyler rocks, three patches, of 6, $7\frac{1}{2}$, and 8 fathoms, lie between Long point and Cape island.

Cape island, 267 feet, flat and rugged, is separated from the base of a conical hill by a channel 400 yards wide, in the middle of which is a shoal with $3\frac{1}{2}$ fathoms water and 9 fathoms on either side. A spit, with 7 to 8 fathoms water, extends 400 yards from the west extreme.

La Hune harbor, west of the shingle beach joining Long point peninsula to the mainland, is open and exposed. There are 11 to 8 fathoms water, but no shelter. The fishing craft belonging to the settlement moor under a cliff at the head of the bay, where neither wind nor sea reaches them even in winter.

The coast from La Hune harbor trends NW. by W. $\frac{1}{2}$ W. $5\frac{1}{2}$ miles to Gulsh cove, and consists of steep bluffs and deep coves, affording no shelter.

Cape rocks, W. $\frac{1}{4}$ N. $4\frac{1}{2}$ miles from cape La Hune, are a cluster of bare black islets, the highest at the south extreme 30 feet above high water.

North rock, 4 feet high, is the northern, N. 900 yards from the highest islet.

Middle rock, 2 feet high, lies N. by W. 650 yards from the same islet.

Naked Man rock, 5 feet above high water, lies E. by N. $\frac{1}{8}$ of a mile from Cape rocks, and may be approached on all sides to within 400 yards.

Shoal and uneven ground surrounds Cape rocks for $1\frac{1}{2}$ miles, except off the south extreme, where the water deepens suddenly to 50 fathoms 200 yards off.

Gulsh cove, is 600 yards deep, with anchorage for a small vessel in 7 to 5 fathoms; but with southwest winds a heavy sea rolls in. The hills fall almost perpendicularly on each side of the cove to a narrow low neck of land, that separates the cove from Southeast arm of Little River.

Gulsh cove islands are two rocky islets; the higher and western, 95 feet high, lies S., $1\frac{1}{2}$ miles from Gulsh cove. Numerous rocks surround them, the outer and western, that covers 5 feet at high water, lies WSW. $\frac{1}{4}$ W., $\frac{1}{2}$ mile from the larger island, with 30 fathoms 100 yards west.

A rock, with 4 feet water on it, lies S. $\frac{1}{4}$ W., 350 yards from the larger island.

A rock, with 3 feet water on it, lies SSE. $\frac{1}{2}$ E., 500 yards from the larger island. Both these rocks have deep water 100 yards south of them.

The coast trends from Gulsh cove to Little River, WSW. $\frac{1}{2}$ W. $4\frac{1}{2}$ miles, is bold and steep, and may be approached to within 200 yards.

Seal rocks, 18 feet high, SE. $\frac{1}{2}$ E. 1,200 yards from the entrance to Little River, are small black rocks, not easily distinguished against the dark coast.

A rock, awash at low water, lies NE. by E. $\frac{1}{2}$ E., 100 yards from Seal rocks, but the whole may be approached to within 200 yards on the south or west sides.

Rocks, about 5 feet above high water, lie between Seal rocks and the east point of the entrance to Little River. There is no passage between them and the shore.

Little River harbor.—About 11 miles WNW. $\frac{1}{2}$ W. of cape La Hune is the entrance of the channel leading to Little River harbor. The position of the entrance may be recognized from seaward by two bold headlands, one of which is situated to the eastward and the other to the westward of it; and on a nearer approach an islet lying near the entrance of the channel will indicate its position.

The points on the east and west sides of the entrance to the channel, and the islet lying near the entrance, are steep-to.

The channel is narrow and about 3 miles in length, having depths of 7 to 10 fathoms, muddy bottom; the land on both sides of the channel is precipitous and covered with brushwood to the summits, the heights of which are about 750 to 1,000 feet. There is no danger except the débris from the hills quite near the shore.

Nearly one mile inside the entrance of the channel there is a basin having sufficient space for large ships to anchor, with good holding-ground. The best anchorage is near the center, abreast the fishing stages, in 9 or 10 fathoms, muddy bottom. The settlement is in a valley situated on the west side of the basin.

From this basin the channel extends about 2 miles farther inland, where it opens into the capacious Little River harbor, which is capable of accommodating a large number of vessels. Little River here divides into two branches.

Southeast arm runs E. 3 miles and has a general width of 600 yards, with good anchorage in 7 to 8 fathoms for the first mile, when the arm widens, and deepens to more than 37 fathoms, shallowing from that, and narrowing gradually to the head.

Northeast arm runs up circuitously for $1\frac{1}{2}$ miles, with $4\frac{1}{2}$ fathoms for the first mile, shoaling to 3 fathoms beyond, the water being slightly deeper on the west shore. It is then separated into two branches by a high wooded bluff, with an accumulation of grass-covered shingle at the extremity. The northeast arm runs up 3 miles, with an average width of 500 yards from this bluff. There is a depth of less than 3 fathoms at the fork, shoaling gradually to the head.

Northwest arm is the western branch, and has $4\frac{1}{2}$ fathoms at the entrance, shoaling immediately after the shingle is passed. It is one mile long and has an average width of 250 yards.

About 8 miles N. $\frac{1}{2}$ E. from the head of Little River harbor is a mountain, on the surface of which coal is seen protruding.

Deer are plentiful during winter, and the settlers depend much on them for subsistence.

Tides.—It is high water, full and change, at Little River at 8h. 40m.; springs rise $6\frac{1}{2}$ feet, neaps 4 feet. A strong tidal stream runs in the direction of the channel, attaining a strength of 2 miles an hour at spring tides.

Small vessels should be careful not to leave Little River when the wind is against the tide, as a confused sea soon gets up.

Little River rocks, 4 feet above high water, lie S. $\frac{1}{2}$ E. $6\frac{1}{10}$ miles from the entrance of Little River. The south side is steep-to, but there is a fringe of shoal water on the north side extending 200 yards from the rocks.

A sunken rock is reported to have been seen breaking SSE. $\frac{1}{2}$ E. about a mile from Little River rocks.

Little River bank.—Eastern rock, with $3\frac{1}{2}$ fathoms, lies near the southeast extreme of Little River bank SW. $\frac{1}{2}$ S. $3\frac{1}{4}$ miles from Little River rocks; from this rock uneven ground extends NW. $\frac{1}{2}$ W. $2\frac{1}{2}$ miles to a head of $6\frac{3}{4}$ fathoms near the northwest extreme of the banks.

Shoal.—A shoal with 4 fathoms on it, and steep-to on the southwest side, is reported by fishermen to exist 10 miles S. $\frac{1}{2}$ W. from the entrance to Little River harbor.

This shoal is said to lie in a N. by E. and S. by W. direction, to be about 1 mile long and $\frac{1}{4}$ mile in breadth; broken water has also been seen in the vicinity.

The coast from Little River trends WNW. one mile and thence NW. 2 miles to East point of Baie de Vieux; is bold and cliffy, and may be approached to within 200 yards.

East point of Baie de Vieux is a rugged, cliffy point falling in a steep slope from a summit inland. Off this point a ledge with 16 to 23 fathoms extends three-quarters of a mile, and a bank, with 10 fathoms water, lies SW. $\frac{1}{2}$ S. 500 yards, but the point may be closed to within 200 yards.

Baie de Vieux, or Old Man bay, is an arm of the sea 6 miles long and generally half a mile wide, with deep water.

Denny island, 335 feet high, lying on the east side of the bay, a mile within East point, is round, wooded with dark trees, and faced by red cliffs. It is steep-to except off the northwest side, where there is a rock with 1 foot water and 16 fathoms 100 yards off.

Dog cove, east of Denny island, is only 150 yards wide, but has good anchorage for small craft in 8 fathoms near the head.

The Nook, 1,450 yards long by 300 yards broad, is an inlet on the east side of Baie de Vieux, formed by a narrow peninsula 477 feet above high water, in which anchorage for small craft may be had at the head in 12 to 9 fathoms.

Anchorage may be had within half a mile of the head of Baie de Vieux in 12 to 7 fathoms, shoaling gradually to the shore. The bay is here 600 yards wide, and several streams, from which water may be obtained readily, run into the head of the bay.

Gnat island, about 50 feet high, lies close to the west shore, $2\frac{3}{4}$ miles from West point, and is round in shape.

West point is a low promontory from the steep slopes of high wooded hills, with a small cove on the north side.

An islet, 5 feet above high water, steep-to on the outer side, lies WSW. 450 yards from West point.

A shoal with 3 fathoms water, and 20 fathoms 100 yards off, lies N. $\frac{1}{2}$ E. 400 yards from West point.

A rock, awash at high water, lies quite close to the west shore, 2 miles nearly from West point, and is the only danger in the bay.

Cobbett, or Mosquito harbor, $1\frac{1}{2}$ miles nearly to the westward of Baie de Vieux, is a basin nearly a mile long, with an average width of $\frac{1}{2}$ of a mile, approached through a narrow channel 100 yards wide.

It is perfectly sheltered, but the water is so deep in the greater part of it (20 to 35 fathoms) that anchorage, even for small craft, can only be obtained in 12 fathoms, near the west end, off a cove where are a few houses.

The only danger is a rock about 50 yards off the south side of this cove. The harbor is surrounded by high wooded hills, the slopes of which fall abruptly to the water's edge. Those on either side of the entrance are conical, the eastern 554 feet above high water.

East Black rock, 5 feet high, lies SE. by E. $\frac{5}{8}$ E. $\frac{1}{2}$ mile from the west point of the entrance.

Two rocks, awash at low water, lie off it, the outer SE. $\frac{7}{8}$ S. 175 yards, with 14 fathoms at 100 yards beyond.

After rounding these from the eastward the entrance may be steered for.

Approaching Cobbett harbor from the westward.—Fox island rock being rounded, a course NE. by E. $\frac{1}{2}$ E. for a little more than $1\frac{1}{2}$ miles will lead clear of West Black rock, whence NE. $\frac{1}{2}$ E. three-quarters of a mile will lead to the entrance.

Gull island, a pinnacle 10 feet above high water, with a similar rock inshore, is almost joined to the mainland half a mile west of Cobbett harbor. In the line of these rocks there is shoal water.

A rock, with 10 feet water on it, lies S. 75° E. 100 yards from Gull island, with 9 fathoms close-to.

West black rock, awash at high water, lies SW. by W. three quarters of a mile from the west point of Cobbett harbor.

A rock, with 3 feet water on it, lies NE. $\frac{1}{2}$ E. 100 yards from West Black rock.

A bank of 7 fathoms water, with 12 to 15 fathoms at 50 yards distant, lies ESE. $\frac{5}{8}$ E. $\frac{1}{2}$ mile from West Black rock, and one of 9 fathoms S. by W. $\frac{3}{8}$ W. $\frac{1}{4}$ of a mile from the same rock.

Flat island, about 10 feet high, lies N. $\frac{5}{8}$ W. 300 yards from West Black rock. No vessel should attempt to pass between these islands and rocks.

Three islands, a cluster of rocks joined at low water, lie NNW. $\frac{5}{8}$ W. $\frac{1}{4}$ of a mile from West Black rock.

Shag islands, ENE. $\frac{3}{4}$ E. 800 yards from the east point of Fox island, are a group of clifty rocks, about 30 feet above high water, with 12 fathoms close-to on the south side.

The Keys, are two rocks with 3 feet water on them, lying E $\frac{1}{2}$ S. 400 yards, and NE. by E. $\frac{1}{4}$ E. 650 yards from the south point of Shag islands.

NNW. of these rocks is a deep bay with no shelter.

Fox island, $1\frac{1}{2}$ miles WSW. of Cobbatt harbor, is 310 feet above high water, rugged and faced by cliffs. It is separated from the mainland by a channel 135 yards wide, in the west part of which is good anchorage for small craft, with a clear passage from either side of Fox island.

A cluster of rocks above water lies 100 yards off the northwest point of Fox island, with deep water close-to.

Bad neighbor, 2 feet above high water, lies 150 yards from the southeast point of Fox island.

A rock, with 2 feet water, lies NE. by E. $\frac{3}{4}$ E. 100 yards from Bad Neighbor, with $3\frac{1}{2}$ fathoms between it and the shore, and 6 fathoms close-to outside.

Shag island sunker, with 5 feet water, and 14 to 28 fathoms at 100 yards distant, lies NE. by E. $\frac{3}{4}$ E. 400 yards from the east point of Fox island.

Shag island shoal, with $5\frac{1}{2}$ fathoms water, and 12 to 15 fathoms close-to, lies NE. $\frac{1}{4}$ E. $\frac{7}{16}$ of a mile nearly from Fox island rock.

Fox island rock, 18 feet high, S. $\frac{1}{2}$ W. $\frac{1}{4}$ mile nearly from the south point of Fox island, is a small black rock with deep water close-to.

Fish island, 1,200 yards SW. by W. $\frac{3}{4}$ W. of Fox island, has a double summit, and is the west point of a bay with deep water and no shelter.

Fish island shoal, with 5 fathoms water, and 14 to 28 fathoms alongside, lies SE. $\frac{3}{4}$ S. $\frac{1}{4}$ of a mile from Fish island.

Brimball storehouse, west $\frac{1}{2}$ of a mile from Fish island, is an inlet $\frac{1}{4}$ of a mile deep with shallow water.

A rock, with 4 feet water on it, steep-to, lies SW. $\frac{1}{4}$ S. 250 yards from the east point of Brimball storehouse.

Bear head, the east point of White Bear bay, 6 miles nearly to the westward of Baie de Vieux, is a steep bluff, falling abruptly from the summit, 526 feet above high water, and fringed by dark cliffs. Off the west point is a pinnacle rock. There is deep water close to the head.

A bank, with 8 fathoms water and 15 fathoms close-to, lies W. $\frac{3}{4}$ S. 300 yards from the south point of Bear head, and a bank of 14 fathoms SSE. $\frac{3}{4}$ E. $\frac{1}{4}$ of a mile from the same point.

Squier cove, on the east side of the entrance to White Bear bay, runs in 1,200 yards, has deep water to the shore, and no anchorage. A few houses are at the bottom of this cove.

Bear island, the summit of which is a dark wooded cone 600 feet above high water, falls steeply on the south and east, but gradually on the other side. The east and south sides are free from dangers, with deep water close to the shore. On the south sides the cliffs are white and bare for some distance from the water's edge, and may be readily distinguished from the dark cliffs under Bear head.

Cul-de-sac inlet lies on the southwest side of Bear island, and is 1,200 yards deep, with 16 to 20 fathoms water in it, and an island off the south point of the entrance. A rock, awash at high water, lies close to the southern point, with deep water close-to.

Cul-de-sac rocks, two heads with 4 feet water, and 14 to 17 fathoms on the west side, lie NW. by W. $\frac{1}{2}$ W. 800 yards from the south point of Cul-de-sac.

Bobby rock, with $7\frac{1}{2}$ fathoms water, WNW. $\frac{1}{2}$ W. $\frac{1}{4}$ of a mile from the south point of Cul-de-sac, is the south end of a bank on which are Cul-de-sac rocks.

Lizzard rock, 20 feet above high water, lies off the extreme of the southwest point of Bear island, and may be approached to a distance of 100 yards.

Deer island, 132 feet high, is separated from the northwest point of Bear island by a narrow shallow channel, on both sides of which are a few houses. Several islets lie off the west side, all of which may be approached as close as 100 yards to the westward.

A rock with 5 feet water on it, lies NNW. $\frac{1}{2}$ W. 100 yards from these islets, and shoal ground extends 250 yards beyond.

There is fair anchorage, with winds from SSW. round by south and east to NNE., in 14 fathoms at 300 yards west of the islets off Deer island; but a heavy swell rolls in with winds from SSW. to west.

A rock, with 3 feet water on it, lies between the east end of Deer island and the north point of Bear island, with 6 fathoms close-to.

Seal island, 85 feet high, N. $\frac{1}{2}$ E. $\frac{1}{4}$ of a mile from the north point of Bear island, is a conical green islet with rocks and shoal ground extending from it NE. 200 yards.

A shoal of 13 fathoms is in mid-channel between Seal and Bear islands.

Round island, 113 feet high, is steep-to on all sides, and lies NW. $\frac{1}{2}$ N. $\frac{1}{2}$ of a mile from the north point of Bear island.

Ship shoal, with 13 fathoms, lies NE. $\frac{3}{4}$ N. $\frac{1}{4}$ of a mile from the north point of Bear island.

White Bear bay runs up 11 miles from the north point of Bear island to the fresh-water brook at the head, with an average width of 1,200 yards. The sides are steep, in many places precipitous, 700 to 1,000 feet high, with deep water close-to.

Bald point is a low promontory on the east side $5\frac{1}{2}$ miles from the north point of Bear island.

Blow-me-down, on the west side, a bold steep bluff 946 feet high, faced by cliffs, lies N. $\frac{3}{4}$ W. a mile nearly from Bald point.

The water in the bay decreases gradually from 130 fathoms at the entrance to 62 fathoms in mid-channel off Bald point; and then suddenly to 13 fathoms, shoaling again gradually to 8 fathoms, in which depth large vessels should anchor, with Blow-me-down point bearing S. by W. $\frac{1}{2}$ W. distant 800 yards.

The anchorage is perfectly sheltered, and the holding ground good.

Northwest brook is a conspicuous waterfall and an excellent watering place, NNW. three-quarters of a mile from Blow-me-down point. Large vessels should not go so far up as this brook, for there is a shoal, with 3 fathoms least water, lying $\frac{1}{4}$ of a mile from it. The water then shoals gradually to the head of the bay, where there is a telegraph station.

The west point of White Bear bay differs from the rest of the surrounding country, in having a gradual moss-covered slope to the water's edge, while the remainder is rugged and much contorted.

Turks and Woody islands lie off this point and are nearly connected to it by shoal water. Woody island, 213 feet high, is very conspicuous from the dark color of the foliage and conical shape.

White island, 138 feet high, shows in contrast to Woody island, and together they form an excellent mark for distinguishing the west entrance to White Bear bay. There is deep water close to White island on all sides.

A bank, extending east and west 300 yards, with 5 fathoms at the east end, and 3 fathoms at the west extreme, lies NE. by E. $\frac{3}{4}$ E. 300 yards from White island, steep-to on north and south sides.

Black rock, 8 feet high, SSW. $\frac{3}{4}$ W. $\frac{1}{2}$ mile from White island, and ESE. $\frac{1}{4}$ E. $2\frac{1}{4}$ miles from Gull island, may be approached close-to on all sides except the east.

Black sunken, with one foot water, E. $\frac{5}{8}$ N. 335 yards from Black rock, is the north end of a bank of shoal ground stretching from it SE. $\frac{5}{8}$ E. 775 yards.

Entering White Bear bay from the westward, White island should be made, mid-channel kept between that island and Black rock, and between Deer island and the mainland.

Ramea islands.—The Ramea islands are a cluster of islands and rocks E. by S. from the Burgeo group, and S. from White Bear bay. They consist of two large islands on the north and numerous smaller islets, rocks, and shoals, on the south. The passage between them and the mainland is clear of danger, though the water is considerably shallower between these islands and Bear head than near any other part of the coast. The least water is 42 fathoms.

Ramea Colombier island, about 120 feet high, lying ESE. $\frac{5}{8}$ E. $9\frac{1}{2}$ miles from Miffel island, is the western of the islands. It makes as a cone from all directions, and is surmounted by a flagstaff.

A rock, awash at low water, lies 70 yards from the east side.

Turr islands, WSW. $\frac{5}{8}$ W. half a mile from Colombier, are two bare rocks, the eastern about 30 feet and the western 10 feet above high water, with 9 fathoms close-to.

A rock, that covers at high water, lies between Turr islands and Colombier.

Northward rocks, 8 feet high, WNW. $\frac{1}{4}$ W. $\frac{1}{16}$ a mile from Colombier, are black islets with 8 fathoms close-to.

An islet, 12 feet above high water, lies NNW. $\frac{1}{4}$ W. 400 yards from the north point of Colombier, with rocks awash at low water extending from it north and south 175 yards.

A rock that covers lies NNE. $\frac{1}{4}$ of a mile from the north point of Colombier, with 11 fathoms 200 yards beyond.

The passage between these and the main islands is free from danger, but the water is comparatively shallow, and a heavy confused sea rises with a strong breeze against the tide.

Northwest island, $1\frac{1}{2}$ miles long and half a mile wide, makes a series of peaks, the highest, Man-of-war hill, being surmounted by a boulder, 211 feet above high water. The water shoals gradually to the shore from 18 to 12 fathoms at three-quarters of a mile distance, the only exception being a bank of $6\frac{1}{2}$ fathoms, that breaks in bad weather, lying NNE. $\frac{3}{4}$ of a mile from Northwest head, and $\frac{1}{2}$ of a mile off shore.

A rock, awash at low water, lies 150 yards off Northwest head.

Gull rock, 8 feet high, off the northeast point, is a round, bare islet, with rocks and shoal water to the shore.

The channel between Northwest island and the rest of the group is only 200 yards wide, except off Ship cove and Muddy hole, two small

bays on the south side of Northwest island, where anchorage may be had for small vessels only, in $6\frac{1}{2}$ fathoms off the former and 11 fathoms off the latter, with 200 yards for swinging room.

The northern entrance has only 15 feet at low water; the southern shoals from 11 fathoms gradually to $6\frac{1}{2}$ fathoms off Ship cove, then suddenly to 15 feet off the southeast point of that cove.

Temporary anchorage may be found in 13 to 5 fathoms off the north end of this channel, the water shoaling rapidly.

Southwest island, about 80 feet high, forms the south side of Ramea harbor, a good harbor for small vessels, the east entrance to which is on the west side of Observation islet, a cliffy rock, with another that covers at high water close to the southeast side. The west entrance nearly dries at low water.

Southwest rocks extend WSW. $\frac{1}{2}$ of a mile from the outer point of Southwest island.

Two rocks, with 4 feet water on them, lie WSW. $\frac{1}{2}$ W. 200 yards, and NW. by W. $\frac{1}{2}$ W. 150 yards, respectively, from the outer point of Southwest rocks.

Shoals.—South of these islands lie numerous shoals; the following alone are dangerous:

Tom Cod rock, with 3 fathoms water, lies SE. by S. $1\frac{1}{4}$ miles from Colombier.

Jim Jeans rock, with 4 fathoms water, lies SE. $1\frac{1}{2}$ miles from Colombier.

Big rock, with 5 fathoms water, lies SE. by E. $\frac{1}{2}$ E. $1\frac{1}{2}$ miles from Colombier.

A shoal, with $3\frac{1}{2}$ fathoms, lies ESE. $\frac{3}{4}$ E. $\frac{5}{8}$ of a mile from Iron island.

West point of Baie de Vieux, NE. $\frac{1}{4}$ E., open south of Copper island, leads to the southward, and Bear island, NNE., open north of Northwest island, leads to the westward of these dangers.

Harbor island is much indented, and nearly divided into two parts by the proximity of two bays. The eastern part, 80 feet high, is wooded and falls in steep cliffs on the east side. The western, about 100 feet high, falls in steep slopes to the channel between it and Northwest island.

This island forms the north side of Ramea harbor, between it and Southwest island, where only vessels may anchor, the remainder of the bays and passages being incumbered with rocks. No vessel should enter this harbor without a pilot.

Turnip island is the outer of a group of islands off the southeast point of Harbor island, with rocks extending 100 yards from the south point, and foul ground on all sides.

Copper island, 102 feet high, is a conspicuous bare cone, with two rocks to the northwest, and a shoal of 3 fathoms close to the southeast extreme. Between this and the other islands there is no channel for a stranger among the numerous rocks and shoals.

Iron island, 46 feet high, WSW. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles from Copper island, and SSE. $\frac{1}{2}$ E. $\frac{1}{4}$ of a mile from the entrance to the harbor, is a cliffy square-topped islet, with rocks east and west 135 yards from it.

Bad Neighbor, a rock always breaking, with 9 to 14 fathoms close-to, lies E. $\frac{1}{4}$ N. $\frac{1}{3}$ of a mile from Iron island.

Black rock, 14 feet above high water, E. $\frac{1}{4}$ N. $\frac{5}{8}$ of a mile from Copper island, is a small pinnacle with 10 fathoms close-to on all sides.

There is no danger to the eastward of this rock.

Puffin island, 131 feet high, is a green cone between Harbor and Great islands. There is no passage between these islands.

Great island, the largest of the group, is $1\frac{2}{10}$ miles long and $\frac{6}{10}$ of a mile broad, with a bold north shore, sloping abruptly from rugged hills that present an irregular outline. Gull hill, 427 feet high, the highest of these hills, is flat-topped, and has a steep fall on the east side that makes it conspicuous when seen from the southward.

On the east side of Great island are several islets, with deep water close-to off the mouths of two exposed coves.

Bonnells point, the south extreme of Great island, slopes gradually from a white summit, 150 feet above high water. Off this point, about 200 yards distant, is a rock that covers at high water.

A rock, awash at low water, lies SW. $\frac{3}{4}$ S. $\frac{1}{4}$ of a mile from this point.

Eastern harbor, a small cove nearly $\frac{1}{2}$ mile west of Bonnells point, has a rock awash at low water in midchannel, and 2 fathoms at the head, where anchorage for small vessels may be had, with shelter from all winds. The entrance is protected by two islands, bold and steep-to, except on the east side, off which, at 100 yards distant, is a rock that covers at high water.

On the south side of Great island numerous rocks and shoals forbid a stranger attempting the passage.

Ramea Southeast rocks are two in number, with a boat channel between. The eastern and higher is 20 feet above high water, and lies ESE. $\frac{1}{4}$ E. $6\frac{3}{4}$ miles from Colombier, and SSE. $\frac{1}{2}$ E. $4\frac{1}{10}$ miles from the east extreme of Great island.

A rock, with 1 foot on it at low water, lies E. $\frac{3}{4}$ S. 400 yards from these rocks, and from it a bank, with 7 fathoms water, extends S. by W. $\frac{1}{2}$ W. 250 yards, deepening gradually in that direction.

At a quarter of a mile north, west, and south there is more than 50 fathoms water.

Ramea South bank, having $2\frac{3}{4}$ fathoms water on it, with 8 to 16 fathoms close-to, and 34 fathoms at a quarter of a mile distant, lies SW. 3 miles from Ramea Southeast rocks, and SE. $\frac{1}{4}$ S. 6 miles from Colom-bier.

The coast—Northwest head.—The termination in that direction of the west point of White Bear bay is rugged and faced by cliffs.

Turk's head, a steep bluff with a rugged background, lies W. by N. $1\frac{1}{2}$ miles nearly from Northwest head. Between these heads is Emily Storehouse cove, a bay $\frac{1}{2}$ mile deep, exposed to all southerly winds.

Offer sunker, with one foot water, W. $\frac{1}{2}$ N. $\frac{3}{4}$ of a mile from White island, has 11 to 22 fathoms close-to, and is the outer danger in Turk's bight.

Anderson rock, WNW. $\frac{1}{10}$ of a mile from White island, is awash at high-water springs, and steep-to.

Anderson sunker, W. by N. $1\frac{3}{10}$ miles from White island, consists of two rocks, awash at low water.

Gull island, west one mile from Turks head, is the outer of a cluster of cliffy islets, but being of the same color as the mainland, is not easily distinguished. Between it and Turks head is a bay with two coves, but the water is too deep for anchorage and there is no shelter.

Gull island shoal, with 4 fathoms on it and 7 to 11 fathoms close-to, lies S. by E. $\frac{1}{2}$ E. 300 yards from Gull island.

Neverfail shoal, with $4\frac{1}{2}$ fathoms on it and deep water close-to, lies S. $\frac{1}{4}$ E. $\frac{1}{3}$ of a mile from Gull island.

Both these shoals break in bad weather.

Samuel shoal, with 6 fathoms water, SSE. $\frac{1}{2}$ E. $\frac{5}{8}$ of a mile from Gull island, breaks in heavy gales, and is the outer shoal.

The water deepens to 100 fathoms at 800 yards SSE. of this shoal.

Little Gull island is a bare rock 135 yards from the shore, lying ESE. $\frac{1}{2}$ E. of Eastern rock, and NW. by W. $\frac{3}{4}$ W. $\frac{5}{8}$ of a mile from Gull island.

Within these islands the coast is rugged and steep, surmounted by dark wooded hills with deep ravines between.

Red island, W. $1\frac{1}{10}$ miles from Gull island, so called from the color of the outer cliffs, is divided into two parts by a low neck of land, the inner a wooded cone 377 feet, and the outer a flat-topped hill, with a white summit, 326 feet above high water.

Tom rock head is a pinnacle at the southwest extreme of Red island, the termination of three cliffy hummocks, that show prominently from east or west.

Salmon-net point is the fall on the southeast of the outer summit of Red island. Both these points are steep-to. This island divides a deep bay into two parts, Northeast arm running in $1\frac{1}{2}$ miles nearly, and Northwest arm $1\frac{1}{2}$ miles.

Northeast arm has deep water, and no shelter for 1 mile, when it narrows to 50 yards, the entrance of an inner basin, Doctor harbor, $\frac{1}{2}$ of a mile long by 150 yards wide, with shelter for small craft only, in 4 or 5 fathoms.

Eastern rock, about 10 feet above high water, is a pinnacle rock off the southeast point of Northeast arm, and is nearly joined to the shore.

A shoal, with $6\frac{1}{2}$ fathoms water and 13 fathoms close-to, lies S. $\frac{3}{4}$ E. from Tom rock head, distant $\frac{1}{2}$ of a mile.

Tom rock, with $6\frac{1}{2}$ fathoms and 11 fathoms close-to, lies SE. $\frac{1}{2}$ E. $\frac{1}{2}$ of a mile from Tom rock head, and a shoal, with $7\frac{1}{2}$ fathoms, lies ESE. $\frac{1}{2}$ mile from Salmon-net point.

Eastern rock shoal, with 4 fathoms and 10 fathoms close-to, lies S. by E. 400 yards from that rock.

Red island harbor, separating the island from the mainland, is $\frac{1}{2}$ of a mile long by 200 yards broad. It can be entered only from the eastward through a channel 30 yards wide, the western entrance being nearly dry at low water. White rock, with 4 feet water on it, lies on the south side of the channel, 50 yards from the southeast point.

To enter, the north shore must be kept close on board until White rock is passed, when keep mid-channel in the entrance, in which there are only 3 fathoms at low water. Anchorage may be then had in 6 to $7\frac{1}{2}$ fathoms, off a small cove on the north side.

Cross rocks in Northwest arm narrow that arm to 200 yards. There are 8 fathoms in the channel between them and Red island. Within these rocks there is anchorage for small craft, with good holding ground in from 8 to 9 fathoms.

Western point of Northwest arm is a series of rocky hummocks faced by cliffs on the seaboard.

Western point rock, with 13 feet water over it and 11 to 17 fathoms close-to, lies SSW. $\frac{3}{4}$ W. 270 yards from Western point.

A shoal of $9\frac{1}{2}$ fathoms lies SSE. $\frac{1}{2}$ E. 200 yards from this rock, and is the outer danger off Western point.

White island shoal, with $3\frac{3}{4}$ fathoms over it and deep water close-to, lies WSW. $\frac{3}{4}$ W. 775 yards from Western point.

Baie de Loup point, W. $\frac{3}{4}$ S. $1\frac{1}{16}$ miles from Western point, is the east entrance of the bay of that name, and the extremity of an island

connected at low water with a narrow peninsula. This island makes in two summits, the northern a wooded cone with dark trees 223 feet, and the outer a grass-covered conical mound about 120 feet above high water, faced by cliffs and terminated by several rocks, all above high water. Between this and Western point is a deep bay, that should not be entered within the line of the points. The coast line is rugged and fringed by cliffy islets and rocks.

Baie de Loup rock, with 7 feet water and 11 fathoms at 100 yards south of it, lies SSE. $\frac{1}{2}$ E. 350 yards from the extreme of the point.

Baie de Loup or Wolf bay runs in a northeast direction $2\frac{3}{4}$ miles from Baie de Loup point.

The sides are precipitous, with deep water close-to, and there is no anchorage until Blow-me-down, a steep bluff on the north side 513 feet high, about three-quarters of a mile from the head, is passed, when good shelter may be had in 10 fathoms, gradually decreasing to $4\frac{1}{2}$ fathoms towards the head. The most convenient anchorage is off the houses at the mouth of Seal brook, a small stream situated northeast from Blow-me-down.

Kings head, the west point of the entrance to Baie de Loup, and the promontory that forms Kings harbor, is 427 feet above high water, and falls with red cliffs on the east side and steep slopes to Kings harbor on the west. A rock about 8 feet above high water lies off the extreme, and there are 11 fathoms close-to.

Kings harbor, $\frac{1}{2}$ mile deep, has anchorage in 9 fathoms 150 yards off the south shore. Kings harbor brook runs in on the west side, and has formed a bank off the mouth extending 250 yards from the west point. The east point of the entrance, bearing S. by W., leads to the eastward.

Piper island, 33 feet high, is a small white islet W. $\frac{3}{4}$ S. $\frac{1}{3}$ of a mile from the rock off the extreme of Kings head, and marks the west side of the entrance to Kings harbor.

Sots hole is a shallow cove 400 yards deep, entered 300 yards west of Piper island.

Buffetts island, NE. $\frac{1}{2}$ mile from Aldridge head, is about a quarter of a mile long and 200 yards broad, with a ledge of rocks parallel to and 100 yards from the north side of the island. There are only 6 feet water between them. There is fair anchorage inside Buffetts island, in 13 fathoms, sand, but a swell rolls in with southerly gales.

Grip island, at the mouth of Muddy hole, lies NNW. 600 yards from Aldridge head. It is white in color, and connected by shoal water to the mainland.

A rock with 2 feet water, and another of 6 feet close to, lies E. $\frac{1}{2}$ S. 100 yards from the south point of Grip island.

Muddy hole is a narrow, shallow, inlet $\frac{1}{2}$ of a mile deep.

The Ha-ha is an inlet running in one mile to the northward of Aldridge and Richards heads. There is no danger till within 100 yards of the head. Small vessels may anchor in from 12 to 10 fathoms, but the anchorage is exposed to easterly winds.

Green Hill island, west a little more than a mile from Baie de Loup point, is separated from the mainland by two narrow, shallow channels on either side of a basin. It is wedge-shaped and covered with dark wood. The summit is conical, 280 feet high, lying on the southeast side of the island, with steep slopes to the seaboard. The north shore is bold.

Aldridge head is the outer extreme of this island, and the east point of a shallow inlet 200 yards deep, off the west point of which is a rock quite close to the shore.

Aldridge rock, awash at high water, lies SE. $\frac{3}{4}$ S. 250 yards from Aldridge head. There are 48 fathoms at 200 yards on the east side, but only $6\frac{1}{2}$ fathoms between it and the shore.

Richards head, 340 feet high, on the mainland within Green Hill island, is a most remarkable saddle-topped hill, with steep cliffs on the southwest side and dark foliage on all other slopes. It is very conspicuous from all directions, and forms an excellent mark for recognizing Burgeo. The coast line at the base is rugged, and indented by shallow creeks, impassable except by small boats.

Grandy island, rugged and barren, is separated from the mainland by Long reach, a narrow strait, the eastern entrance of which, under Richards head, is shallow, and the southern entrance, west of Mercer point, is spanned by a bridge. The island is $1\frac{1}{4}$ miles long and deeply indented by two arms of the sea running in from the eastward.

Burgeo, a considerable village, is situated on the east side of Grandy island, with several conspicuous houses, and a wooden church with a short spire.

Supplies may generally be obtained in small quantities here, but the water obtained from Mercer cove is not good. Excellent water may, however, be obtained in Wolf bay.

Fish island, about 40 feet high, is the outer and eastern of a group of islands and rocks off the east side of Grandy island, nearly connected by shoal water, with passages between, that no stranger should attempt. This group is separated from the shores of Green Hill island and Richards head by the entrance to Short reach, a passage 200 yards wide, but narrowed to half that width by rocks and shoal water.

Short reach runs into Grandy island $1\frac{1}{2}$ miles, with an average breadth of 300 yards. Anchorage may be had at the head in $8\frac{1}{2}$ fathoms, mud, with swinging room for small vessels.

Fish Island rock, with 3 feet water, and 9 feet at 100 yards northeast, steep-to on the outer side, lies SE. $\frac{1}{4}$ E. 200 yards from Fish island.

Smalls island is the southwestern of the group of islets and rocks off the east side of Grandy island, making between it and the latter a capital harbor for boats and small schooners, with 11 feet of water in it. The south shore has rocks at the entrance and in the channel, but the north is clear of danger. The island is surmounted by a flag-staff, and has 4 fathoms close-to on the east side.

Ship dock, around which are situated the wharves and warehouses of the principal trading firm at Burgeo, is a small cove.

The agent's two-storied house shows conspicuously from all directions, and there is a flag-staff on the east point. The water is deep close to the wharves, but the anchorage (in 13 fathoms) is small, and care should be taken of the small rock east of Franks island, and the shoal water off the channel separating that island from the mainland.

Furber point, low and shelving, lies east of Ship dock.

A rock, that covers at high water lies NE. by E. $\frac{1}{2}$ E. 300 yards from Furber point, and is connected by shoal water to Smalls island.

White ground (Pylades rock), with 13 feet water on it, lies SW. $\frac{1}{4}$ S. $\frac{1}{2}$ mile nearly from Fish island, with 20 fathoms at 100 yards south from it.

Two shoals, with 3 and $4\frac{1}{2}$ fathoms water, respectively, lie between White ground and the rock off Furber point.

Anchorage may be had off Burgeo in from 16 to 24 fathoms, mud, good holding ground, taking care to keep the fall of the Sandbanks open south of Furber point, and Grip head open north of Morgan island.

A mooring buoy is laid down in 19 fathoms for the convenience of trading vessels, but it should not be used by long ships, the anchor being small and the buoy only 200 yards distant from the rock off the northeast point of Morgan island.

Mercer point, the southwest extreme of Grandy island, is a bluff, dark point forming the south point of Mercer cove, an indentation running 800 yards into the south part of Grandy island. It consists of two basins, and is separated from Long reach by a low neck of land. Off the south side of the entrance is a small islet, and there is shelter for small vessels in the outer basin.

West Muddy hole, a shallow bay, lies NE. of Mercer point.

Circular rocks, occupying a space of 330 yards NE. and SW., have deep water on the south side; and the east extreme lies S. by W. $\frac{1}{2}$ W. 135 yards from Mercer point.

Potato point, WSW. $\frac{1}{2}$ W. $\frac{3}{4}$ of a mile from Mercer point, is a rocky hummock joined to the east extreme of the Sandbanks, a plateau of sand and marsh terminating the mainland west of Grandy island. This plateau is faced by sandbanks 20 feet above high water, has several wooded hills on it, and a range bordering the west part, sloping from Grip head, a dark bluff hill 152 feet high, with steep cliffs on the south side.

Sandbanks point is joined at low water to the south extreme of the Sandbanks; is wedge-shaped in outline, with a bay 400 yards deep on the east side, and rocks extending 100 yards off the northeast point.

Sandbanks Point island lies off the southeast extreme of Sandbanks point, and has $5\frac{1}{2}$ fathoms close-to. Some rocks, always above water, lie SSE. of Sandbanks point, with $3\frac{1}{2}$ fathoms water close to them.

Fox point is a grass-covered, rocky peninsula 62 feet high, joined to the west end of the Sandbanks by a low neck of sand, and may be approached to a distance of 100 yards. Between this point and Cornelius island are several rocks and islets, the southern of which, Harry island, grass-covered, with a bare islet off the south extreme, lies WNW. $\frac{1}{2}$ W. 250 yards from Fox point.

There is a depth of 5 fathoms at 50 yards off the latter; but between Fox point and Cornelius island there is a sand flat, with 2 to 3 feet at low water.

Cornelius island, NW. 400 yards from Fox point and 123 feet high, is much indented, has a double summit, and is almost divided in two parts by the meeting of two coves, namely, the Harbor, available only for boats, on the north side, and Back cove, much exposed, and containing several rocks, on the south side. Rocks and foul ground extend 150 yards from the northwest point of this island, and it should not be closed on the outer side nearer than 400 yards.

The Boar, 14 feet high, is a round rock, lying SW. $\frac{3}{4}$ W. 400 yards from the southwest point of Cornelius island, with deep water close-to.

The Sow, 17 feet high, lies W. $\frac{3}{4}$ S. 600 yards from the Boar, with some detached rocks close-to, and 8 fathoms at 50 yards distant.

A Shoal of $3\frac{1}{2}$ fathoms lies SSW. $\frac{3}{4}$ W. 400 yards from the Sow.

When first seen the land in the vicinity of Burgeo appears gray where denuded of the stunted trees that grow generally on the seaboard, and its outline is almost unbroken, but on nearer approach the rugged and contorted nature of the country, the innumerable hills and deep ravines, are made apparent.

Burgoe islands.—These form a group of almost innumerable islands and rocks, composed of Laurentian gneiss, showing white when bare, with two remarkable exceptions, namely, Round and Harbor islands, which are composed of dark micaceous gneiss, causing them to be readily distinguished from the others.

Only the important islands will be described.

Boar island, 201 feet high, is the easternmost of the group, and lies SW. by W $1\frac{1}{2}$ miles from Baie de Loup point and ESE. half a mile from Smalls island. It is in two parts, separated by a marsh; the southern and higher portion is wedge-shaped, and it may be approached to within 200 yards. Off the south point rocks and shoal water extend 150 yards, with 18 fathoms close beyond; and off the north point is a ledge, with least water of 12 feet 150 yards distant, falling suddenly to 9 fathoms.

Light.—From a square light-house at the summit of Boar island, elevated 207 feet above high water, is exhibited a *fixed red* light of the sixth order, illuminating an arc of the horizon of 270° to seaward, and visible in clear weather 17 miles.

Boar Island rock covers one foot at high water, and lies SE. by E. $1\frac{1}{2}$ miles from the south point of Boar island. From it a ledge of 8 fathoms extends 200 yards to the northwest, with 15 fathoms close-to in that direction, and deep water close-to on other sides.

Boar Island shoal, with 5 fathoms water, lies SE. by S. $\frac{1}{2}$ of a mile from the southeast point of Boar island, and has 10 to 15 fathoms close-to.

Little Boar island, 20 feet above high water, lies 150 yards off the west point of Boar island, and there is shoal water 50 yards distant in the direction of the latter. It is steep-to on north and west sides.

Cuttail island is separated from the southwest side of Boar island by a channel 250 yards wide that should not be taken by a stranger. This island has bare, steep slopes to the southward, and is 140 feet above high water.

Goose island, 34 feet high, and **Hug-my-dug** are the north and south of a group of rocky islets to the eastward of Cuttail island. Both are white islets, the latter square-shaped, about 40 feet above high water.

Venils island, 165 feet high, is separated from Cuttail island by a channel 150 yards wide, with foul ground stretching from both sides, making it unnavigable for ships without a pilot.

On the east side is a cove 200 yards deep, affording good shelter for small vessels in $3\frac{1}{2}$ fathoms.

The south shore of this island is bare and gray, with several islets close-to, and deep water immediately outside.

Venils shoal, with $4\frac{1}{2}$ fathoms water, is an isolated patch SE. by E. $\frac{1}{4}$ E. $\frac{1}{4}$ of a mile from the southeast point of Venils island.

Baggs island, 160 feet high, is separated from the west side of Venils island by a narrow, shallow channel, available for boats at low water. It is a barren island, with a peaked summit, and has a rock, awash at low water, off the west point. Between the south point of Baggs island and the southwest point of Venils island is a cluster of rocks that cover at high water.

Rencontre island, the highest of the Burgeo group, is nearly divided by the meeting of a shallow bay from the southwest side and an inlet containing 3 fathoms water, with a bar, nearly dry at low water, across the entrance, on the northeast side. The western portion is a truncated cone, 269 feet high, covered with dark foliage, and shows out very conspicuously from all directions. The eastern portion is wooded, and falls with steep, bare slopes to the sea. A rock, with 6 feet water, lies close to the shore off the northwest point.

Rencontre island is separated from the southwest side of Baggs island by a channel 350 yards wide, free from danger.

Gull island, 50 feet high, lying ESE. a quarter of a mile from Rencontre island, is a bare rock, steep-to on the east side, but with foul ground extending 150 yards to the westward.

A **rock**, about 6 feet above high water, lies NNW. $\frac{1}{4}$ W. 150 yards from Gull island, and a shoal, with 13 feet water, between the extreme of the foul ground and Rencontre rock.

Rencontre rock, with 7 feet water on it, and 18 fathoms at 50 yards SE., lies ESE. $\frac{3}{4}$ E. 350 yards from the south point of Rencontre island, and NE. $\frac{3}{4}$ E. $\frac{1}{3}$ of a mile from the south point of Musket islands.

Musket islands are two in number, with 2 fathoms water between them, and 10 to 20 fathoms water at 100 yards distant; the higher, 32 feet high, lying SSW. $\frac{1}{4}$ of a mile from the south point of Rencontre island.

Little Rencontre rocks are a cluster of three, lying SSE. $\frac{1}{4}$ E. 150 yards from Little Rencontre island.

Between Musket islands and Little Rencontre rocks is a shoal of 4 fathoms water steep-to.

Little Rencontre island, separated by a channel 150 yards wide from the southwest point of Rencontre island, is a dark, conical island about 150 feet high, with a saddle-shaped summit, showing out well when seen from east or west. There is deep water close-to.

Crocker island, 89 feet high, W. $\frac{1}{4}$ S. 250 yards from the west point of Rencontre island, is also of a gray color and steep-to, except off the northwest point, from which a shoal of 6 feet extends 50 yards.

White island, 45 feet high, with 11 to 13 fathoms at 100 yards distant, lies W. by N. 350 yards from the northwest point of Rencontre island, and is conspicuous from its color when seen against the larger islands.

Morgan island 138 feet high, a moss-covered, undulating island, lies SW. by W. $\frac{5}{8}$ of a mile from the northwest point of Boar island, and is separated from the north side of Rencontre island by a clear channel 350 yards wide.

Off the north side shoal water fringes the coast; the west side is bold-to, the south side encumbered with rocks and shoals, and a shoal extends 50 yards off the northeast point. There are two coves on the south side, with the houses of fishermen on their shores.

Hunts island, south of Morgan island, and nearly joined to it, is a narrow, steep island, with deep water off the south point only.

A shoal of 13 feet lies WSW. $\frac{1}{4}$ W. 200 yards from the south point of Hunts island.

A rock, with 9 feet water, lies E. $\frac{1}{4}$ N. 375 yards from the northeast point of Morgan island.

Burnt islands, a group of low islets, with several rocks to the westward, lie off the east side of Morgan island, and nearly close the channel between that and Outtail island.

Eclipse island, 33 feet high, surmounted by a whitewashed cairn, is conical in shape, covered with stunted bushes, and has a low projection to the eastward, off which shoal water extends 100 yards with 10 fathoms beyond. The passage between this and Morgan island is clear in mid-channel.

Franks island is flat and nearly joined to Eclipse island. It has a fringe of low-water rocks, and a small rock that covers 4 feet at high water lies 100 yards off the east side.

There are only 6 feet water in the passage between this island and the mainland.

The Douglas covers one foot at high water, and is a small round rock, nearly always breaking. It lies NE. by E. $\frac{2}{5}$ of a mile from Sandbanks Point island, and SW. by W. $\frac{5}{8}$ of a mile from Eclipse island. There is a depth of 12 fathoms close-to on the east side, but the southwest side is foul for 100 yards distant.

A rock, with 10 feet water, lies W. $\frac{3}{4}$ S. 175 yards from the Douglas with 5 fathoms between them and deep water in other directions.

The Baldwin consists of two rocks nearly joined, the higher about 15 feet above high water, steep-to on all sides, lying NE. $\frac{3}{4}$ E. $\frac{1}{3}$ of a mile from the south extreme of Sandbanks Point island.

Baldwin shoal, with 10 feet water, lies ENE. $\frac{1}{6}$ of a mile from Sandbanks Point island, and has 11 to 12 fathoms close-to.

A rock, with 4 fathoms water and 11 fathoms close-to, lies E. $\frac{3}{4}$ S. a little more than $\frac{1}{2}$ mile from Sandbanks Point island.

Round Shag island, SW. by W. $\frac{5}{8}$ of a mile from Musket islands, is a conspicuous cone 64 feet high, with 10 fathoms water at 100 yards distant.

A shoal, with 5 fathoms water and 12 fathoms close-to, lies NE. $\frac{1}{2}$ E. 375 yards from Round Shag island.

Seal islands, NNW. $\frac{1}{2}$ W. 250 yards from Round Shag island, are a cluster of islets and rocks 400 yards in extent, with deep water close-to, except off the northeast side, NE. $\frac{1}{2}$ N., 350 yards from which is a shoal of $5\frac{1}{2}$ fathoms.

Ragged island lies NW. by W. a little more than $\frac{1}{2}$ a mile from Round Shag island; three rocks that cover, but always break, lie 200 yards distant from the west side.

A rock, awash at low water, with 7 to 17 fathoms close-to, lies NE. $\frac{1}{4}$ N. 400 yards from Ragged island.

Colombier island is conical, with a double summit, the higher 177 feet. It shows very prominently from all directions, and is an excellent mark for distinguishing the Burgeo islands. Two promontories extend from the west side, the northern with two hummocks, the southern a steep slope ending in cliff, with deep water close-to.

A rock, awash at high water, with 20 fathoms close-to, lies S. by W. 200 yards from the south point.

Little Colombier, about 6 feet above high water, consists of two rocks nearly joined, lying NNE $\frac{1}{2}$ of a mile from the west point of Colombier island, on a plateau of sand, with a general depth of $3\frac{1}{2}$ to $4\frac{1}{2}$ fathoms, deepening to the northward, but continuing about the same depth to the outer islands.

Petit Marchand, about 5 feet high, is also in two parts, and lies NW. $\frac{1}{2}$ W. $\frac{1}{4}$ of a mile from Little Colombier on the same plateau of sand.

A rock, with 15 feet water and 5 fathoms close-to, lies E. 600 yards from Petit Marchand.

Fish rock, awash at low water, lies W. $\frac{1}{2}$ N. 400 yards from Petit Marchand. Between them is a shoal with 6 feet least water.

Marchand rock, with 9 feet water, lies W. by S. $\frac{1}{2}$ mile from Sandbanks Point island.

Stern rock, with one foot water, lies E. $\frac{3}{4}$ N. $\frac{5}{8}$ of a mile from the north point of Round island.

Bateau rock, with 6 feet water on it, lies SW. by W. $\frac{1}{4}$ W. $\frac{5}{8}$ of a mile from Sandbanks Point island.

South Shag island, 38 feet high, SW. by W. $\frac{1}{4}$ W. $1\frac{1}{10}$ miles from Round Shag island, is a bare flat rock, with a small rock close-to on the east side.

Black rock, 5 feet high, SW. $\frac{1}{4}$ W. $1\frac{1}{10}$ miles from Round Shag island, is small and round, steep-to on the south side but with foul ground on the north and west sides.

Gun island, about 25 feet high, is a barren islet, with deep water on the east side, lying close to Black rock.

Miffel island, 60 feet high, the outer of the Burgeo group, is composed of gray gneiss, and makes as a cone from all directions. Parallel to the west side and close-to is a line of three rocks, with deep water alongside. The south side also is bold.

A rock, with 6 feet water, lies 135 yards from the north end, and one, awash at low water, lies NE. $\frac{3}{4}$ E. 350 yards from the same point.

Fortune rock, with $4\frac{1}{2}$ fathoms and deep water close-to, lies E. $\frac{1}{4}$ S. one-quarter of a mile from Miffel island.

Whale's back, with 5 fathoms water, breaks in winter gales, and is the shoalest spot of some uneven ground W. $\frac{1}{4}$ S. half a mile from Miffel island. With any breeze the tide makes a heavy sea at this place.

Mark rocks are two pinnacles, lying NNW. $\frac{1}{2}$ W. 1,200 yards from Miffel island, with a rock awash at low water close-to the east side of the west rock.

New Mark rock, with 4 fathoms water, steep-to on the outer side lies SSW. 300 yards from the east Mark rock.

Green island, about 80 feet high, is a flat-topped grass-covered island, with white cliffs and deep water on seaward face, and a small islet off the east extreme.

Green Island rocks, about 10 feet high, are two bare islets, the outer of which lies NNW. 300 yards from Green island.

Green Island shoal, with 5 fathoms water, and 11 to 13 fathoms close-to, lies WSW. one-third of a mile from Green island.

Neverfail shoal, with 7 fathoms water, lies SW. $\frac{1}{2}$ W., 600 yards from Green island.

Harbor island consists of numerous islets and rocks of a dark color, with steep cliffs on the north and west sides, sloping to the east, where there is a shallow cove with good shelter for boats. A remarkable hummock called the Louse-box surmounts the southwest point of this island.

Harbor Island rock, 2 feet above high water, with 6 fathoms close to, lies WSW. 270 yards from the south point of Harbor island.

Round island, 79 feet high, of dark micaceous rock, is cliffy and steep-to, except on the east side, from which a ledge of 3 fathoms extends to a distance of 50 yards.

The passage between Harbor and Round islands is free from danger, but it is better for a stranger to take the northern route.

West Flat island, the westernmost of the group, about 25 feet high, is a bare white rock, making in two flat summits, with a rock awash at low water, 100 yards off the south point, and more than 10 fathoms at 200 yards distant.

Beacon.—A wooden pyramidal beacon marks the west summit of this island.

Dangers.—Several shoals and fishing banks lie near this island. The following are those that break in winter gales:

Graley rock, with 9 feet water, and 10 fathoms at 200 yards distant, lies SSE. $\frac{1}{6}$ of a mile from West Flat island.

Point shoal, with 5 fathoms water, and 13 to 19 fathoms close-to, lies SW. $\frac{1}{2}$ W., 1 mile from West Flat island.

Offer shoal, with 4 fathoms water, is the outer and western of these dangers, with 15 fathoms close-to, and lies SW. $\frac{1}{2}$ W., $1\frac{1}{2}$ miles from West Flat island.

Telegraph.—There is a telegraph station at Burgeo.

Tides.—It is high water, full and change, at Burgeo at 8h. 32m.; springs rise $6\frac{1}{2}$ feet and neaps 4 feet.

There is no regularity in the direction of the tidal streams off Burgeo, but they are greatly influenced by the prevailing winds. The western stream attains a velocity of $1\frac{1}{2}$ knots an hour after a prevalence of easterly winds, but the eastern stream seldom exceeds one knot an hour.

The Coast.—**Green island**, NNW. $\frac{1}{2}$ W., $\frac{1}{3}$ of a mile from Cornelius island and about 40 feet high, is long and narrow, with rocks extending 350 yards from the southwest side and a rock, awash at low water, in mid-channel between it and Little Barasway head, from which it is distant 250 yards.

No Man rock, one foot above high water, lies W. by S., 400 yards from the west point of Green island.

A rock, with 12 feet water on it, and 7 fathoms close-to, lies W. by S., $\frac{1}{4}$ of a mile from No Man rock.

Galloping Moll rock covers 5 feet at high water, and is nearly always breaking. It lies SW. $\frac{3}{4}$ S., 800 yards from No Man rock. There are 11 fathoms at 100 yards distant.

Frying Pan rock, 2 feet high, lies S. $\frac{1}{2}$ W., 250 yards from the east point of Green island, and ESE. $\frac{1}{2}$ E. from it distant 100 yards is Saddle Fox, a rock awash at low water.

Little Barasway is a large bay nearly all dry at low water, with two inlets, First and Aaron arms running to the eastward. The entrance is nearly dry at low water, and is on either side of a conical islet, NNE., 300 yards from Green island east point. This islet is 49 feet above high water, with a rock close to the south point.

The Canal is an artificial cutting connecting Little Barasway with Grandy brook, available for the small boats of the fishermen from three-quarters flood to a quarter ebb, thus avoiding the dangerous passage named Little Gut.

In the bay between Little Barasway head and Fox point the water is shallow, and there is an alternation of sandy beach and rocky point, with a cluster of islets (Coombes islands) on the north side.

Little Barasway head, on the west side of the entrance to Little Barasway, is a grass-covered mound connected with Little Gut head by a line of sand-banks 10 to 15 feet above high water, to which several rocky hummocks are joined at low water.

Grandfather rock, 6 to 8 feet high, lying SW. by W., 300 yards from Little Barasway head, is bare and flat, with a rock that covers 4 feet, WNW. $\frac{1}{2}$ W., 200 yards from it.

Middle head, about 40 feet high, is joined to the line of sand-banks at low water, and lies N. by W., 250 yards from Little Barasway head. Off this head is an islet about 8 feet above high water, with 6 fathoms close-to. Between these heads the water is shoal.

Charlie head, 46 feet high, is an isolated rocky mound lying N. by W., half a mile from Little Barasway head, with rocks that cover at high water close to the extreme.

Crow head, about 40 feet high, joined to the shore at low water, has a dark conical mound on the inner side that is prominent from seaward.

Flannagan island, 33 feet high, lies NW. $\frac{3}{4}$ W., of $\frac{7}{10}$ a mile from Little Barasway head, has a flat top, and is faced by cliffs, with a small rock close to the east side.

A rock, that covers 2 feet at high water, with 7 fathoms close-to, lies S. by E. $\frac{1}{2}$ E., 400 yards from Flannagan island, and a patch of rocks, with two heads covering 3 feet, lies SE. by E. $\frac{1}{2}$ E., 350 yards from the same island.

Poll island, 44 feet high, lies N. $\frac{1}{2}$ W. 270 yards from Flannagan island, and is in two parts, the outer flat and low.

Grandy brook is an arm of the sea running inland $2\frac{1}{2}$ miles to the fresh-water brook at the head.

Little Gut, the entrance to Grandy brook, is 100 yards wide, and has only one foot in it at low water.

The tide runs through Little gut with a velocity of 3 to 4 knots an hour, so that except in calm weather and at high water the channel is impassable.

Little Gut head, south of Little Gut, and NW. $\frac{1}{2}$ N. $1\frac{1}{10}$ miles from Little Barasway head, is the southwest point of a sharp-topped conical hill 225 feet high, the east slopes of which fall into Little Barasway. The rocks about this head are white, and off it is a rock, awash at high water, with shoal water just outside.

There is a remarkable difference between the land west and that east of Grandy brook; the former consists of ranges of hills with cliff-faced summits and smooth, mossy slopes; the latter consists of conical hills and mounds partially covered with stunted trees or whitened by former fires.

Norman head, west of Little Gut, is a bare-topped mound 93 feet high, with a spit of shingle extending from the base into Little Gut. West of this head extends a long shingle beach 10 feet above high water that forms Big Barasway, a large shoal bay containing two islands. The entrance at the west end of the beach is encumbered by rocks, and it is rarely used even by local small craft. The beach has a grassy mound at the west extreme, and two mounds at short distances to the eastward of it.

Barasway bay, the open space bounded by Cornelius island on the east and Barasway point on the west, has a general depth of 17 fathoms on the outer edge, but islets, rocks, and foul ground make it quite useless as an anchorage, and in bad weather the bay appears a mass of breakers.

Mile rocks are a cluster of islets and rocks, occupying a space 1,200 yards long by 800 yards broad, the highest 14 feet high, with rocks awash and below water all round at a distance of 600 yards.

A rock, with 6 feet, lies E. $\frac{1}{2}$ S. $\frac{2}{10}$ of a mile, and a shoal of 7 feet NE. $\frac{3}{4}$ E. $\frac{3}{4}$ of a mile from the highest of the Mile rocks.

The Jumper, awash at low water, and always breaking, is the outer danger in Barasway bay, and lies SE. by E. $\frac{3}{4}$ E. $1\frac{1}{2}$ miles from Barasway point.

Barasway point, the west point of Barasway bay, is a low promontory extending seaward from the slopes of Father Hughes hill 398 feet high, that makes as a cone when seen from seaward, and is the end of a flat range of hills stretching to the interior. The moss and stunted

growth that cover this hill are darker than the surrounding country, and tend to make it conspicuous even in misty weather.

A rock, with 6 feet water on it, lies 300 yards off Barasway point, and on the south side, at 190 yards distant, is a rock that covers one foot at high water.

Doctor harbor is an inlet 600 yards deep in Barasway point, available for small vessels only, with a small white island in the entrance.

From Barasway point the coast is foul for 6 miles nearly to Connoire bay, with a deep bay between nearly filled with islands and rocks.

Connoire bay, nearly 12 miles NW. by W. $\frac{1}{2}$ W. from Miffel island, runs in $2\frac{3}{4}$ miles, with a width of a little more than a mile to Mid point where it branches in two arms, the east extending $2\frac{1}{4}$ miles, and the north 3 miles, the latter navigable for one mile only. The east point slopes with whitish rock from a grass covered mound, and may easily be recognized; the west point is low and flat. Anchorage may be had in the north arm in 7 to 5 fathoms, but it is exposed to southwesterly winds. Small vessels can find perfect shelter in the east arm in depth as convenient.

Muddy hole is a boat harbor just west of Connoire bay, about $1\frac{1}{2}$ miles deep, and open to south.

Shag island is the outer of a group of islets and rocks, lying S. from the west point of Muddy hole, and there is no passage between it and the land.

Comus shoal, with 3 fathoms water, lies WSW. $\frac{1}{2}$ W. a little more than 2 miles from Shag island, and is steep-to all round. Teal rock is a small islet WNW. $\frac{1}{2}$ W. one mile from Shag island, fronting the entrance to Oar cove.

Oar cove, to the westward of Muddy hole, runs in nearly 2 miles. Anchorage may be had on the west side, but is exposed to southerly winds, and should be entered by keeping the west shore on board. Captain island forms the west point of Oar cove, and divides it from Knife bay. A ledge of rocks extends SW. by W. $\frac{1}{2}$ W. $1\frac{1}{4}$ miles from this island, and with it two islets and rocks nearly block the entrance to Knife bay.

Knife bay or Baie de Couteau runs in $4\frac{1}{2}$ miles from these islets, being a mile wide, gradually diminishing to the head. The north shore is bold-to, and also the southern bill of the west point, but from the western bill of that point a ledge extends SW. half a mile nearly. Small vessels may anchor near the head in 2 or 3 fathoms with good shelter, and should enter the bay by keeping the southern bill of the west point close on board.

Inland from this bay is a remarkable range called Blue hills of Cou-

teau, consisting of a square hill, the highest, and several peaked summits west of it, about 1,000 feet high.

Five Stag bay or **Baie de Cinq Cerfs**, immediately west of Knife bay, runs in about 2 miles, and is cut up into several coves, where small vessels may anchor. It is 2 miles wide at the entrance, and contains a number of islands and rocks. An islet lies off this bay SW. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles from Knife point (the east point of entrance), and is steep to all round.

To enter, steer from this islet N. by E. $\frac{1}{2}$ E. until abreast a point on the east side a mile within Knife point. Keep the east coast on board, passing east of a white rock in the middle of this arm, to a wooded island lying a quarter of a mile beyond the white rock, round east of this island, between it and one farther east, and anchor in 7 fathoms NNW. of these islands.

There is another anchorage east of Five Stag islands, but the passage is tortuous and shallow.

The high land of Grand Bruit is a remarkable hill 930 feet high, situated almost immediately over the coast, just west of Five Stag bay, and is conspicuous from all directions seaward.

The islands of Grand Bruit lie off the coast to the southward of this hill, and extend $1\frac{1}{2}$ miles from the shore; the highest has on it three green mounds. **Three islands**, low rocks, lie NNE. of this island, and have sunken rocks south of them.

Colombier of Grand Bruit is the southern of these islands and conical in shape, steep to on the south side.

A rock, that breaks only in bad weather, lies ENE. $\frac{3}{4}$ E. $1\frac{1}{2}$ miles nearly from Colombier.

Grand Bruit harbor lies north of these islands, and is entered by keeping between Three islands and the highest Grand Bruit island. The harbor is small, but secure for small vessels, which can anchor in 5 fathoms, and after passing the sunken rock off Colombier there is no hidden danger. A large cascade falls into this harbor from the high land of Grand Bruit.

Rotte Colombier is W. 3 miles nearly from Colombier of Grand Bruit. Between these islands and the mainland is a labyrinth of rocks and shoals entirely unsurveyed.

This islet is 60 feet high and conical, and is the most remarkable of the group.

A sunken rock lies SSE. $\frac{1}{2}$ E. three-quarters of a mile from Rotte Colombier.

Ireland island, westward a little more than 3 miles from Rotte Colombier, lies a little more than a mile off the east point of the entrance

to La Poile bay. **Southeast rock**, awash at low water, lies NE. a quarter of a mile, and a ledge extends 575 yards from the southeast point of this island.

Beacon.—On this island has been erected a square beacon, painted white, with three black bands. It is 75 feet high, and is supported by four chains.

North rock, awash at low water, lies NNW. $\frac{1}{2}$ W. 1,200 yards from the north point of Ireland island.

La Poile bay extends NNE. 7 miles, with a breadth of $1\frac{1}{2}$ miles, when it subdivides into Northeast arm and North bay, the former extending ENE. $2\frac{1}{4}$ miles and the latter NNE. $3\frac{1}{4}$ miles. The shores are bold, and fall steeply to the water's edge from hills ranging between 770 and 50 feet high.

Gallyboy harbor, a narrow boat creek, having a rock with 6 feet water in mid-channel, is situated $2\frac{1}{4}$ miles from the entrance on the east shore. The south point is foul for a distance of 200 yards.

Friar rock, awash at low water, lies 250 yards off the south point of Sandy cove, on the east shore, $3\frac{1}{4}$ miles within the entrance.

Northeast arm, affords excellent anchorage in 13 to 10 fathoms, mud, in a space $\frac{3}{4}$ of a mile long and $\frac{1}{2}$ of a mile broad, entered between a low beach of shingle, sheltering a lagoon, on the south side, and a sloping point on the north. There is no danger in the entrance or the arm.

Water may be obtained from Rattling brook, near the head.

Dolman cove is an open bight west of Dolman head, a steep bluff, and lies between Northeast arm and North bay.

North bay is shallow from the entrance, but anchorage may be had just outside in 12 fathoms, gravel.

Bennet rock, with 12 feet water, lies ESE. 400 yards from Vineyard islet, a small islet off the east point of Broad cove, $2\frac{1}{2}$ miles from Little harbor.

Little harbor, on the west shore, 3 miles from the entrance, is $1\frac{1}{2}$ miles deep, and affords anchorage in a space 400 yards in diameter off the fishing settlement, in 10 fathoms. A shoal, with $6\frac{1}{2}$ fathoms on it, is reported to lie in this harbor. Buoys are laid down for convenience of warping vessels to the wharves. Anchorage may be had off the mouth of this harbor in 15 fathoms, exposed to southwest winds.

Beacon.—A small iron beacon, surmounted by a staff and cage, is placed on the outer rock off the south entrance point to Little harbor; shoal water extends a few yards outside the beacon.

La Poile harbor, just inside the west point of the entrance, is $\frac{7}{8}$ of a
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mile deep and 400 yards wide, and continued at the head for another half mile by a narrow bight.

Harbor rock, with 10 feet water, is the extreme of a shoal extending 175 yards from the south shore, just within the entrance, and NNW. $\frac{1}{4}$ W. 400 yards from Beacon point. To avoid this rock keep the north shore on board. There is a large village round this harbor, with a church, and a beacon is erected on the south point. Anchorage may be had in 11 fathoms.

Cox rock, with 9 feet water, lies 600 yards off the west point of the entrance to La Poile bay, and W. $2\frac{5}{16}$ miles from Ireland island.

La Plante, a narrow boat creek near the entrance, may be entered by keeping the east point close on board, to avoid a rock just inside the mouth.

Supplies.—Coal can generally be obtained here for from \$4.50 to \$5 per ton. Vessels drawing 18 feet can go alongside the wharf. Water can be had from the pipes.

Tides.—It is high water, full and change, in La Poile bay at 9h. 0m. Springs rise 6 feet, and neaps 4 feet.

Little la Poile, a narrow, shallow inlet, runs in west of La Poile bay. From La Poile bay the coast to the westward is much indented, and skirted by islets and rocks, $1\frac{1}{2}$ miles from the land, with no ship passages inside them.

Garia bay, 4 miles west of La Poile bay, runs in north $3\frac{1}{2}$ miles and is two-thirds of a mile wide; it then turns to the eastward for 3 miles, gradually decreasing in breadth. Near the east entrance is White Point island, so called from the color of the south point, and close off the east point is a group of islands, ending at the south in sunken rocks. The bay is encumbered with islands, and there is only a narrow passage in for small vessels. On the mainland, east of White Point island, are two green hillocks.

To enter, bring White Point island to bear N. and steer in on that bearing; keep west of that island until the channel between the east point and the next island west of it is open; pass through this in mid-channel, and by keeping the east shore on board a depth of 3 fathoms will be carried into the bay, and anchorage had as convenient.

Wood suitable for building fishing craft grows in Garia bay.

Garia peak, 1,720 feet high, lies $3\frac{1}{2}$ miles inland from this bay, and is remarkable from seaward.

Little Garia bay, a mile to the westward of Garia bay, is an open cove nearly a mile deep, with no shelter.

Wreck island, SSE. $\frac{1}{4}$ E. half a mile from Little Garia bay, has a reef a quarter of a mile in extent off the south side.

La Moine bay, $4\frac{3}{4}$ miles to the westward of Garia bay, extends NNE. $4\frac{3}{4}$ miles, and has a nearly uniform width of 800 yards. The east point is lower than the neighboring land, and is red in appearance. Several islets lie off this extreme, and a reef stretches off the west end. The head of the bay is high and steep.

To enter, keep the west point on board till the bay is entered, then edge over into mid channel to the head, where good anchorage may be had in 10 to 11 fathoms.

Wood and water may be readily obtained here.

Neck harbor is separated from La Moine bay by a gray cliff of moderate height, and may further be recognized by the land being higher near the shore than any in the immediate vicinity. It may be entered by passing west of an islet in the entrance.

Anchorage for a short time may be had in 6 fathoms in a cove west of the islet, but vessels wishing good shelter should keep mid-channel to the arm running NE., and anchor in 20 fathoms, eastward of an island.

Rose Blanche point, the west extreme of Neck harbor, is of moderate height, and terminates in a gray cliff.

Light.—On the eastern head of Rose Blanche point a light-house of granite has been erected, from which, at an elevation of 95 feet above the level of the sea, is exhibited a *fixed* white light, that shows from a bearing of WSW. $\frac{1}{2}$ W. round by north to NE. by E. $\frac{1}{2}$ E., and should be seen in clear weather a distance of 13 miles.

Rose Blanche harbor, lying immediately west of this point, is small, but affords secure anchorage for small vessels in 9 fathoms. On the west side are some islands, with sunken rocks off the south extreme, and shoal water stretches SW. $\frac{1}{2}$ S. half a mile from the light-house. A look-out station, erected by a mercantile firm, stands on a hill near the harbor, and is conspicuous from seaward.

To enter, keep between the point and the island west of it, and close a small island near to the north side of Rose Blanche point, round this island, and anchor with it bearing S. by W. $\frac{1}{2}$ W.

Mull face, a small cove, lies 2 miles to the westward of Rose Blanche point, and has shelter for small craft from off-shore winds in 4 fathoms. To the west of the entrance is an island, with sunken rocks off it in all directions.

The coast west of Mull face is gray in color and not high, but rises abruptly to hill summits about 2 miles inland.

Baziel islands, 2 miles to the westward of Mull face, are close to the shore, but small vessels find shelter north of them.

Burnt islands are a large group, filling a bay $6\frac{1}{2}$ miles from Rose Blanche point. They are low and difficult to distinguish until quite close. Many sunken rocks lie among them, some of which are nearly half a mile off shore.

Burnt islands harbor lies north of these islands, but should not be attempted without a pilot.

Bad Neighbor, a dangerous rock, lies off the west end of Burnt islands, off the entrance of God bay, $1\frac{1}{4}$ miles from the coast.

God bay, called also Baie de Vieilles, lies immediately west of Burnt islands harbor, from which it is separated by a long narrow point of land. It extends NE. $1\frac{1}{4}$ miles, and is half a mile wide, but is so much encumbered by rocks as to be fit only for small vessels. In entering the bay, keep the eastern shore on board.

Coney head is the extremity of a tongue of land, $1\frac{1}{2}$ miles in length, separating God bay from Coney bay.

Coney bay runs in $1\frac{1}{2}$ miles from Coney head; to enter it after having passed the outer reefs, keep the east point on board and then cross to the west shore, and keep it on board till the head is reached, where anchorage may be had in 4 fathoms.

Otter bay, or **Baie de la Loutre**, is just west of Coney bay. The west point is continued in sunken rocks for half a mile, and the entrance is encumbered by rocks.

Butter pot, a remarkable hill, lies east of the head of this bay.

Caution.—Neither Otter bay nor Coney bay should be entered without a pilot.

Dead, or **Moat islands**, are a group to the westward of Otter bay about a mile in extent, lying parallel with the coast. They are fringed with reefs on the south and east sides for nearly half a mile.

Dead island shoals extend more than a mile SW. of the islands, and are separated from them by a narrow channel with 8 to 10 fathoms water.

Dead, or **Moat island harbor**, is formed by Dead or Moat islands.

There is anchorage for small vessels in a space $\frac{1}{2}$ mile long and 300 yards broad, approached by three passages, namely, Eastern and Middle passages, too shoal and intricate to be taken without a pilot, and Western passage, 100 yards wide at the narrowest parts, available for vessels drawing less than 20 feet water. To enter by Western passage keep Butter pot, east of Otter bay, in line with the north extreme of Dead island, the largest and highest of the group, bearing ENE. This will lead between the shoals on either hand to the west extreme of Dead island, pass in mid-channel between that and the isl-

and next north, and anchor in 4 or 5 fathoms, north of the east extreme of Dead island.

A shoal, with 15 feet water, lies in the center of the harbor.

The coast, west of Dead islands, is low and foul for half a mile from the shore.

Black shoal, with 15 feet water, is situated SW. 600 yards from Black rock and E. $\frac{1}{4}$ S. a little more than 2 miles from Channel head light-house.

Little bay, a narrow creek with shelter for schooners, is a mile east of Channel head, and may be entered by bringing the south shore to bear NE. $\frac{1}{2}$ E., and steering for it on that bearing; when the bay is entered anchor as convenient.

Little bay shoal extends half a mile from the east point. Southeast shoal, with 4 fathoms water, lies E. $\frac{1}{2}$ S. 1,200 yards from Channel head.

Port Basque, $7\frac{1}{2}$ miles southeast of Cape Ray, may be readily distinguished by the large settlement of Channel and the white light-house on Channel head. It is entered between Shoal point on the east, off which shoal water extends 400 yards, and Channel head on the west side. The shores are barren and rocky in appearance, but the harbor contains good anchorage for moderate sized vessels in a space nearly half a mile long and 300 yards broad, with from 8 to 11 fathoms, mud.

Channel head is the eastern termination of a barren, rocky island, nearly cleft through in several places by deep fissures. A small rock which forms the extreme is bold-to.

Light.—From a light-house near the summit of Channel head a *fixed red* light is exhibited at an elevation of 90 feet above high water, and in clear weather should be visible from a distance of 12 miles. The light-house is painted white, with a red roof.

Shoal point is the extreme of a small round hill, 51 feet high, facing undulating marshy land. Some low rocks lie off the point, which are nearly joined to it at low water.

Pot rock lies $\frac{1}{4}$ of a mile ESE. $\frac{1}{2}$ E. of Shoal point.

A rock with 8 feet water is the shoalest part of a bank 100 yards long and situated WSW. distant 225 yards from the rock off Shoal point.

Snooks island, a gray rock about 50 feet high and 170 yards long, lies a little more than 200 yards to the northwest of Shoal point and shelters Snooks harbor, a place of refuge for fishing-boats.

Channel is a large village on the mainland, just north of the island forming Channel head, and contains three churches: Episcopal, with spire surmounted by a cross; Wesleyan, with spire and weathercock;

and Roman Catholic, with an unfinished square tower. A windmill that turns a lathe is also a conspicuous object on entering port Basque.

A telegraph station is established here in connection with the Anglo-American lines.

East Baldwin is a rock that dries $1\frac{3}{4}$ feet at low water, and lies nearly in the middle of the apparent channel to the harbor. It consists of three parts with a total length of 70 feet, from which shoal water extends WNW. 133 yards to a depth of 3 fathoms, falling suddenly to 11 fathoms.

A small rock with 10 feet water is situated W., 250 yards from East Baldwin, from which a shoal with $3\frac{1}{2}$ fathoms water extends SSW. 60 yards.

Coast.—The west side of port Basque entrance falls in low cliffs to the sea from turf-covered hills 123 feet high.

West Baldwin, a rock 100 yards in diameter, the shoalest part of which has one foot on it at low water, lies 150 yards off the highest of these cliffs and a little more than 1,000 yards from Chanenl head, leaving a passage only 80 yards wide between it and the shoal extending from the rock west of East Baldwin. Not more than 2 fathoms can be carried between West Baldwin and the shore.

Road island, the western of two islands extending from the east shore and 1,700 yards NW. $\frac{1}{2}$ N. of Channel head, is 30 feet high and covered with turf over gray rock. A rock that dries one foot at low water lies close to the southeast extreme, and shoal water extends 50 yards from it. Several isolated rocks fringe the west shore, distant 30 yards. A rock that dries 2 feet at low water lies a few yards from the northwest extreme, and from it shoal water extends 33 yards to the depth of 3 fathoms. Rocks also fringe the north shore about the same distance off. A bank extends 200 yards from the southeast side of Road island, on which is a rock with 5 feet water, and 70 yards distant from the island.

Gallyboy island lies eastward of Road island, from which it is separated by a channel 200 yards wide. Through this is a narrow passage with $3\frac{1}{2}$ fathoms water, but local knowledge is required to make it available. Gallyboy island is low, flat, and covered with grass, and is joined to the east shore at low water just west of a mound 50 feet high, covered with dark stunted trees. Numerous rocks and shoals extend nearly 200 yards to the northward of this island.

Coast.—On the west shore of the entrance to port Basque a small projection divides two coves, both of which are shallow. A government wharf is built on the north side of this promontory, alongside which there is a depth of 15 feet at low water. Vessels should be care-

ful when going alongside this wharf not to enter the cove immediately to the westward of it, as the water shoals rapidly. At the head of this cove is a small islet, just above high water, on which is a ringbolt, to aid vessels when hauling into a narrow anchorage between the foul ground off this islet and Pancake rock.

Pancake rock, about 130 feet in diameter and awash at low water, is the east extreme of foul ground extending from the shore north of these coves. The passage between the shoal off this rock and the foul ground off Road island is only 90 yards wide, and care must be taken, therefore, to keep on the marks given. Not more than 10 feet water can be carried between Pancake rock and the shore.

Flag-staff hill, 222 feet high, is the greatest elevation near the coast, and is surmounted by a large stone cairn with a wooden triangle at the top.

Beacons.—Other beacons have also been erected to facilitate navigation. Two surmounted by diamonds, on the shore northwest of Pancake rock; one surmounted by a triangle, close to the shore under Flag-staff hill; and two surmounted by circular disks, on the east shore of the bottom of port Basque, the narrow inlet north of Woody island. The northern diamond beacon open east of the southern beacon leads east of Pancake rock.

Directions.—The beacon surmounted by a triangle on Flag-staff hill, or, in foggy weather, that at the base of the hill, should be brought in line with the southwest point of Road island bearing NW. by W. $\frac{1}{2}$ W and this mark run on until the beacons surmounted by diamonds are in line bearing WNW. $\frac{1}{2}$ W. These should then be kept in line, to avoid the shoal off the south point of Road island, until the circular beacons are in line bearing NW. by N. This last mark will lead in mid-channel between Pancake rock and the shoals off Road island, and when the north point of Gallyboy island is seen open north of Road island the anchorage may be steered for.

The anchorage is nearly half a mile long, and 300 yards broad, affording perfect shelter in 8 to 10 fathoms, mud. The holding-ground is bad until the channel is well open between Road and Gallyboy islands.

Caution.—Care should be used not to mistake the telegraph poles on Flag hill for the flag staff; the latter has a mound of stones surrounding the foot.

Tides.—It is high water, full and change, in Port Basque at 8h. 55m. Springs rise $5\frac{1}{2}$ feet, and neaps $3\frac{1}{2}$ feet.

West rock, with 4 fathoms over it, lies SW. from the light-house, distant $\frac{1}{4}$ of a mile.

Mouse rock, with 6 feet water, lies W. $\frac{1}{2}$ S. $\frac{1}{2}$ mile from the west extreme of Channel head.

Mother Lake bay, west of Channel, is shoal to the mouth.

Little Yankee and Hobbs rocks are on the west side of shoal water, extending 600 yards from the shore, a little more than a mile west of Channel.

A shoal with 15 feet lies 300 yards SSE. of Little Yankee rock.

A group of islands and rocks connected by shoal water lies parallel to the shore, and 800 yards distant.

Yankee rock, the southern, is low and lies WSW. $\frac{1}{2}$ W. 600 yards from Little Yankee rock, and 270 yards from Hobbs rock.

Yankee shoal, with 4 fathoms water on it, lies SSE. $\frac{1}{2}$ E. $\frac{1}{3}$ of a mile from Yankee rock.

Duck island, at the north of the group, is 40 feet high and may be approached to a distance of 200 yards on the north side.

Durant island, 800 yards NNW. of Duck island, consists of two mounds, the higher 25 feet, joined by a shingle beach.

Anchorage may be had east of the channel between Duck and Durant islands in 3 to 4 fathoms, sand, and may be entered by a vessel drawing less than 21 feet, by keeping mid-channel between these islands, or from the eastward by keeping the east extreme of Durant island in line with the east extreme of Yankee rock, till that rock is neared, mid-channel between it and Hobbs rock; then steering for the point of the mainland east of Durant island will lead to the anchorage.

Grand bay, available for vessels drawing less than 9 feet water, affords perfect shelter in 2 to 4 fathoms; it is entered through a narrow channel NNE. of the anchorage above mentioned, by keeping the south shore on board. A deep bight from the east side of the bay extends to within 250 yards of the head of the inlet north of port Basque.

Shoals stretch off the west side of these islands from Yankee rock to point Enragée, and this coast should not be approached by large vessels within a mile, nor from point Enragée to cape Ray.

Point Enragée is a low point surrounded by rocks, and the coast from it to cape Ray is composed of low sand hills facing salt water lagoons.

Halibut rock, NW. by W. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles from point Enragée, lies off the west extreme of Shag island, a narrow rock nearly joining the mainland.

Barachois rock, with 9 feet water, lies NNW. $\frac{3}{4}$ W. a little more than a mile from Halibut rock, and the same distance off shore.

Snook bank, with 6 fathoms water, lies SSW. $\frac{1}{2}$ W. $\frac{5}{8}$ of a mile from cape Ray.

A Telegraph station is situated in a cove a little more than a mile east of cape Ray, at the east end of the cable that crosses the gulf of St. Lawrence to Aspee bay in cape Breton island.

St. Paul island, lying in the main entrance to the gulf of St. Lawrence between the southwest extreme of Newfoundland, and the north extreme of Cape Breton island, is composed of primary rocks, principally mica slate, dipping at an angle of not less than 45° to the southward. It is nearly 3 miles long by 1 mile broad. Its northeast point is a small detached islet (although it does not appear as such from the sea), which is separated by a very narrow channel from a peninsula between 300 and 400 feet high, which, together with the isthmus, is so precipitous as to be nearly inaccessible. The remaining part of the island, which is also steep and precipitous towards the sea, has two parallel ranges of hills, that on the eastern coast being the highest, and attaining an elevation of 450 feet.

A valley runs between these hills, having two small lakes or pond 200 or 300 feet above the sea. These supply the principal stream on the island, which is about 2 yards wide, of yellowish brown water, well-tasted and wholesome, and descending into the sea in the southern part of Trinity cove. There are several other, but much smaller, streams of water, one of which runs into Atlantic cove. These two coves are nearly a mile from the southwest extremity of the island, the first being on the west side, and the other on that which is toward the Atlantic, as its name implies. They afford the only shelter for boats, and the only good landing on the island, which is easier of ascent from them than at any other part.

The island is partially wooded with dwarf and scrubby spruce trees, useless, except for fuel. The only inhabitants are two men in charge of a dépôt of provisions for the relief of shipwrecked persons, supported by the Dominion of Canada. These men reside on the north point of Trinity cove, where there is a dwelling house and store. They grow a few potatoes, and shoot ducks during the winter, spring, and autumn. A very few foxes are the only wild animals upon the island; there is no feathered game, or anything else to support life. The ocean, however, compensates for the deficiencies of the land; codfish and halibut are often plentiful around the island, and mackerel and herrings may be taken at times in their seasons.

Anchorage.—Off Trinity and Atlantic coves small fishing schooners anchor, with the wind off shore, in 10 or 12 fathoms, sand and gravel bottom, and at the distance of 400 yards from the rocks. In very fine weather large vessels might venture to ride with a stream anchor, in from 25 to 30 fathoms, about half a mile off shore, but should be in constant readiness to weigh at the first sign of a change in the wind or weather. Farther off shore the water becomes deep, so that there is little or no warning by the lead in approaching this island in foggy

weather. On this account, although so bold and high, it is extremely dangerous, and many shipwrecks have taken place upon its shores, attended with a most melancholy sacrifice of human life.

The irregularity of the tidal streams and currents adds much to the danger arising from the fogs, which prevail in southerly, easterly, and often also with southwest winds. During the whole of a fine calm day at the end of June, the current set to the southeast at the rate of one knot an hour past the north point of the island.

Lights.—Two light-houses stand on St. Paul island, one on the detached rock within 26 feet of the north point of the island, and the other on the extreme southwest point.

The light-house on the rock is 40 feet high, of an octagonal shape, constructed of wood and painted white. It exhibits a *fixed white* light which can be seen from seaward on any bearing, excepting between N. by W. $\frac{1}{4}$ W., and NE. $\frac{1}{4}$ N., when it is hidden by the island.

The light-house on the southwest point, also an octagonal white building of wood, and 40 feet high, exhibits a *revolving white* light which is visible from seaward on all bearings except between SE. $\frac{1}{4}$ E. and SW. by W. $\frac{1}{4}$ W., when it is concealed by the intervening land. Both lights are elevated 140 feet above the level of the sea, and when the weather is clear, they may be seen from a distance of 20 miles.

These lights will be extinguished each season, on December 31, and relighted on April 1 following; subject to the condition that if, at any time during this interval, open water should be visible, or other circumstances occur to indicate that navigation in the vicinity of the island is practicable, the lights will be exhibited for the time being.

Fog signal.—During thick or foggy weather or in snow storms a steam fog whistle in Atlantic cove on the south side of the island, and about half a mile from the Humane establishment, is sounded *five seconds* in every minute.

CHAPTER V.

NEWFOUNDLAND, WEST COAST.—CAPE RAY TO CAPE BAULD.

Cape Ray, the southwest extreme of Newfoundland, is very remarkable, the extreme is low, but at 3 miles inland is Table mountain 1,700 feet high, rising abruptly from the low land. Cook stone, 1,570 feet high, is a small peak at the southwest extreme of the mountain, at the base of which is **Sugar loaf**, a conspicuous conical hill, 800 feet above high water. Two smaller conical hills lie between Sugar loaf hill and the shore.

The Tolt, 1,280 feet high, is a conical spur off the middle of the west face of the mountain. From cape Ray to the northward the French have a right of fishing.

Light.—On the west side of cape Ray is a white hexagonal tower, from which at an elevation of about 110 feet a *white* light is exhibited, showing a *flash every ten seconds*, and visible 20 miles in clear weather. From a long distance, however, it has the appearance of a steady light.

Fog signal.—A quarter of a mile east of the light-house in thick weather, fogs, and snow storms, a steam fog whistle will be sounded for *ten seconds* in *each minute*, leaving an interval of *fifty seconds* between blasts. This whistle has been heard from a distance of 8 miles.

Brandies rock is a dangerous breaker, WNW. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles from cape Ray, and $\frac{1}{10}$ of a mile from the nearest shore. It is about 50 yards in diameter and is nearly awash at low water.

Shag ledge, a small rocky islet, lies close to the shore three-quarters of a mile northward of cape Ray.

The coast to the northward is nearly straight, faced by low cliffs, and bordered by a shingle beach that may be approached to the distance of 200 yards.

Little Codroy river is entered between Shoal point to the southward, off which a reef extends half a mile, and Larkin point, shoal for nearly the same distance. The entrance, nearly 9 miles from cape Ray, can only be taken by boats, but anchorage for small vessels may be had off the mouth with shelter from off-shore winds. A considerable settlement is being formed on the banks of this river.

The coast north of Larkin point becomes foul, and should not be approached nearer than half a mile.

Great Codroy river, $12\frac{1}{2}$ miles from Cape Ray, can be entered at low water by schooners drawing 6 feet, but the tide is very strong; it can be ascended $3\frac{1}{2}$ miles from the entrance, but a pilot should be taken, as there is no natural leading mark. A large settlement is being formed in this neighborhood.

Stormy point, 2 miles west of Great Codroy river, is a reddish-colored, narrow, cliffy, projection, terminating in a ledge of low rocks, and should not be approached within half a mile.

Codroy island, 36 feet above high water, and two-thirds of a mile long, is 2 miles from Stormy point and 180 yards from the mainland. From each extreme a shingle beach curves to the eastward, forming a harbor for boats and small schooners, but with no shelter from westerly sea.

Codroy road is formed by the island and curve in the coast south of it, and affords indifferent anchorage in 9 to 10 fathoms, pebbles and gravel, bad holding ground. A considerable village is situated on the mainland, with an Episcopal church.

The hills gradually approach nearer the coast, rising in height till at Cape Anguille they slope sharply to the sea.

Tides.—It is high water, full and change, in Codroy road at 9h. 15m. Springs rise 6 feet, neaps 4 feet. Along this coast the tidal streams run generally, flood to SW. and ebb to NE., but there is no fixed rule, and they sometimes run strongly against a fresh breeze. The streams in the offing are often different from those near the shore.

Cape Anguille slopes sharply from a high wooded hill, the summit of which is 1,170 feet above high water. On the west side of the cape is a remarkable white patch that helps to distinguish it.

St. George bay is entered between capes Anguille and St. George (N. $\frac{3}{4}$ E. and S. $\frac{3}{4}$ W. 35 miles apart), decreases in width gradually to the head, and is about 50 miles deep.

The shores are nearly straight, and the only place of refuge is in St. George harbor at the head. The position of the land shown on the charts is only an approximation, and a vessel's position cannot be accurately ascertained by cross bearings. The lead should be kept going while in the bay, as several indications of shoal water have been obtained. The south shore is high, wooded, and rugged, with several small indentations, into which considerable streams from a range of mountains 10 miles inland empty, the mouths being generally marked by a group of fishermen's huts. A reddish pyramidal rock is detached from the coast about 6 miles from Cape Anguille, and shows conspicuously from the line of the coast.

Soundings.—A depth of 10 fathoms water was obtained in St. George bay, with the north fall of the land at the isthmus (the Gravels) bear-

ing NNW. and Indian head bearing E.; from this position soundings of from $9\frac{1}{2}$ to 12 fathoms were carried for about three miles in a westerly direction, beyond which the water deepened.

Robinson head is a high wooded hill, 288 feet high, steep over the shore, rising gradually to a peaked cliff 36 miles from Cape Anguille. The north shore of the sandy spit forming Flat bay should not be approached within three-quarters of a mile. The head of the bay is foul half a mile from the shore.

St. George harbor lies at the head of St. George bay, and is the entrance to Flat bay, formed by a long narrow sand spit, on the east extreme of which, Harbor point, is a flag-staff that can be seen before the point itself. A considerable settlement stands on this spit, with two churches. Messervy point juts into the harbor at two-thirds of a mile from Harbor point, and is continued 400 yards by a sand bank, awash at low water, that is reported to be extending rapidly. The water shoals suddenly across the harbor 400 yards west of this point, and there is passage to Flat bay for small vessels only, with a good pilot.

Anchorage may be had in 9 to 10 fathoms, mud, with Indian head just shut in with Harbor point and the Roman Catholic chapel in line with Messervy point, or for small vessels in 5 fathoms, mud, in the small cove west of Messervy point, with the Roman Catholic chapel W. $\frac{1}{2}$ N. and the houses on Messervy point N. $\frac{1}{2}$ E.

This anchorage is very safe; the sea is never too high for a vessel, and the anchors sink so far in the mud that it is difficult sometimes to break them out.

Distinguishing marks.—A beacon, surmounted by an *open-work triangle*, marks the extremity of Harbor point, and two *new churches* stand on the same point, the *towers* of which show above the trees.

Light.—A *fixed white*, dioptric light, of the 6th order, elevated 35 feet above the sea, and visible 7 miles all around the horizon, is exhibited from a round iron tower on Sandy point.

The tower is painted in alternate *red* and *white* horizontal bands, three of each. A wood store, with a flat roof, on the south side of the tower, is painted *white*.

Tides.—It is high water, full and change, at St. George harbor at 10h. 3m. Springs rise $6\frac{3}{4}$ feet, neaps $4\frac{1}{4}$ feet. The tidal streams are tolerably strong at the anchorage, as Flat bay is filled and emptied through the harbor.

Winds from SSE. blow with great violence, and it is necessary to moor if desirous of making a long stay.

Herring fishery is carried on by English fishermen. The herring are caught in considerable numbers for about 15 days, when they leave suddenly and follow the coast to the northward.

Water may be obtained easily from a stream on the south side of the harbor.

Little river is situated 2 miles east of the anchorage, and is convenient for getting wood or water, but boats cannot enter at all times of tide, and a heavy sea rolls in with on-shore winds. There is an abundance of trout in this river.

St. George river lies NE. $\frac{3}{4}$ E. 3 miles from Harbor point, and is accessible to boats and small schooners at high water. There are only $1\frac{1}{2}$ feet on the bar at low water.

Sea Wolf lagoon is a shallow inlet east of Indian head, formed by a bank of shingle, on which are a few clumps of trees, and containing 3 fathoms water, but faced by a bar with 3 feet at low water.

Indian head, NNW. $\frac{3}{4}$ W. 3 miles from Harbor point, is a rocky point faced by low rocks and sloping from a range, the highest part of which, a mile inland, can be seen 25 miles in clear weather. A deep valley separates this range from the hills over Port-au-port.

Isthmus bay, 8 miles WNW. $\frac{1}{2}$ W. of Indian head, is on the south side of the narrow isthmus joining the peninsula of cape St. George to the main. This isthmus is low and contains a pond, through which a small boat may cross from St. George bay to Port-au-port. The shore in this neighborhood is cultivated and faced by shingle beaches.

Temporary anchorage may be had off this bay in 8 or 9 fathoms, sand and gravel, near the west point. Within the bay the bottom is rocky and holding ground bad.

The coast from Isthmus bay to cape St. George is moderately high, with steep reddish cliffs, in some of which are deep cavities. Near cape St. George are some red patches in the hillsides, and a series of shingle beaches extends to the cape, backed by low cliffs.

Cape St. George is easy of recognition, low at the extreme, but rising in a sharp inclined plane to the northward, with high cliffs over the sea to cape Cormoran, a high head covered by dark stunted trees, over a gray cliff N. $\frac{3}{4}$ E. $5\frac{1}{4}$ miles from cape St. George.

Red island, separated from cape Cormoran by a channel a little more than half a mile wide, is about a mile long and half a mile broad. The north side is a steep, red-colored sandstone cliff, sloping gradually to the shore on the south. Off the south shore is a low shingle point, continued under water, that shifts after prevailing heavy gales or with the ice in winter. This bank has extended for several years, but there still remains a passage for a small vessel near the main shore. It would be imprudent for a vessel to pass through this channel without having ascertained if there is a sufficient depth of water. Off the west extreme is a sunken rock, and a rocky ledge, with depths of from 9 to 15 fath-

oms, extends in the same direction for about a mile from the island. A reef extends nearly one-half mile from the eastern extreme.

The tidal streams are strong between this island and the mainland.

Red island road affords temporary anchorage in 11 fathoms ESE. a mile from the east extreme of the island, and vessels should be prepared to leave directly the wind veers north of NW. With southerly winds the squalls are very violent, and vessels sometimes drag.

Les Vaches are two groups of rocks, extending a third of a mile from the coast at 3 miles northeast of cape Cormoran. They are joined by shoal water to the main, but may be passed at 100 yards distant on the northwest side of the highest, which is always above water.

Round head, 6 miles from cape Cormoran, is a wooded hill rising over a low earth cliff, covered with wood and faced by shingle, that extends from just south of Red island to the entrance of Port-au-port.

Port-au-port is entered between Long point and the main, a distance of 5 miles. Long point is the extreme of a narrow wooded tongue of land, forming the east end of the peninsula of cape St. George. Off the extreme, rocks extend nearly a third of a mile. The head of the bay is split into two bays by Middle point, 5 miles long, low, reddish, and bare at the extreme, from which a sand bank, with bowlders that uncover, extends $1\frac{1}{2}$ miles. Middle bank lies in a continuation of this shoal, with a deep channel between. It is $2\frac{1}{2}$ miles long and three-quarters of a mile wide, is tolerably steep-to, and very dangerous, as it rarely breaks. The south part is awash at low-water springs, and there are several heads with 3 feet water.

Table mountain is high and flat, lying at the south end of Port-au-port, and the south extreme of high land that terminates in the Sugar loaf, a conical hill over Coal river.

Fox island lies a mile from the main, SE. by S. 4 miles from Long point. It is wooded and low.

Fox tail is a reef extending $1\frac{3}{4}$ miles from the north extreme of Fox island, part of which uncovers at low water.

Middle point (locally known as Piccadilly point) has on it a lobster factory; there is another factory at the head of East bay.

West bay, west of Middle point, has no danger in it, and is easy to beat into; but southeasterly winds blow with great violence, and vessels should always be prepared to leave. NE. winds bring in a sea.

Anchorage may be had in 9 fathoms 10 miles within Long point, or in 11 fathoms south of the shingle bank 2 miles from Long point, off the fishing post.

Head harbor (Pic à Denis) is at the head of West bay, and affords

good anchorage in the middle in $4\frac{1}{2}$ fathoms, muddy sand. NE. winds bring a sea to this anchorage, but it may be considered safe. Water may be obtained from the west side of the harbor, and wood is abundant.

East bay, at the head of which is the isthmus separating Port au Port from St. George bay, does not afford good anchorage, the bottom being of rock covered with long tangle.

Northeast road is south of Road point, S. $\frac{1}{2}$ E. $2\frac{1}{2}$ miles from Fox island. Anchorage with shelter from NE. winds may be had in 12 fathoms, black mud, with Fox island touching Road point, off a pond that can be seen within a shingle beach. Westerly winds alone are inconvenient here.

River anchorage is off the mouth of a stream well stocked with fish, 2 miles to the northward of Road point, where vessels may find shelter in $3\frac{3}{4}$ fathoms, sand, with the isthmus of Port-au-port open west of Road point and the south point of Fox island WNW. $\frac{1}{2}$ W.

East road is of no value; the holding ground is bad, and several vessels have been lost there with violent SE. winds. The channel between Fox island and the main is clear, but the island should not be closed at the north extreme to avoid Fox tail. Bluff head on the main, at the northeast extreme of this passage, is high and steep. The low point stretching south from it is foul for a distance of 200 yards. Beyond it to the north is a high rock, remarkable when seen from between Fox island and the main.

Long ledge is nearly in the line of Long point, and separated by a clear channel $3\frac{1}{2}$ miles wide. It is a dangerous shoal, 4 miles long, the north portion being just above water and the south part with 3 to 15 feet water on it.

Shag island, small and black, with a rugged summit, lies NE. by E. 8 miles from Long point, nearly a mile from the main, and $2\frac{1}{4}$ miles from Long ledge. The passage between it and the main is clear, and vessels may anchor under the lee of the island with westerly winds, but the anchorage is bad with other winds.

Round shoal, with 7 feet water, is a small rock SW. by W. $\frac{1}{4}$ W. $1\frac{1}{2}$ miles from Shag island.

Directions.—To pass west of Middle bank, keep Shag island open north of the high lands that form the south side of the valley south of Bear head, and bearing NE.

To pass between Middle bank and the shoal off Middle point, keep Round head SW. by W. $\frac{1}{2}$ W. just open east of a round hill in the foreground.

To pass between Middle bank and Fox tail, keep Road point just open west of Fox island.

To pass east of Middle bank, keep the first ravine northeast of Table mountain open east of Fox island.

To clear Fox tail in the channel, keep the extreme of Bear head touching the south point of Shag island.

To pass west of Long ledge, keep the fall of Table mountain open west of Fox island; and to pass south, keep the Sugar loaf near Coal river open south of Shag island.

To pass north or south of Round shoal, open Sugar loaf north or south of Shag island.

Coal river is entered 5 miles NE. by N. of Shag island. The mouth is barred by a shingle bank, so that small boats alone can go in, and a high, triangular, yellow rock lies about 100 yards north of the river.

Bear head is a steep, dark bluff, separated by a deep valley from the high lands of the interior, and situated 3 miles from Coal river. On the north side is Bear cove, containing two yellowish rocky islets, that are scarcely seen against low cliff of the same color, forming the bottom of the cove.

The Virgin is a remarkable isolated column on the coast range, 6 miles from Bear head, forming a good mark of recognition for this vicinity. Capelan bay, a little north of the Virgin, is at the south extreme of a high peninsula, 754 feet high, the northeast extreme of which is Vide Bouteille cape. The bay has a beach of broken white coral.

Little port runs in southeast 600 yards from Vide Bouteille cape, is narrowed to 100 yards in the entrance, and expands at the head to 200 yards in width. It is frequented till 20th June by French fishing vessels, that moor head and stern and leave to follow the codfish, that disappear about that time from this neighborhood.

Anchorage for small vessels may be had in $2\frac{1}{2}$ fathoms, sand and mud. SW. and SE. winds bring violent squalls, and north winds bring a sea into the harbor, so that the entrance is dangerous for boats always, and for vessels in spring and autumn.

Tides.—It is high water, full and change, at Little port at 10h. 24m. Springs rise $5\frac{1}{2}$ feet.

Woody bay, half a mile from Little port, is about 400 yards in diameter, and fit for boats only, that have considerable difficulty in entering with westerly winds.

Miranda cove, a small boat creek with a fishing establishment, is situated 300 yards north of Woody bay.

Devil or Frenchman head, situated $1\frac{1}{2}$ miles westward of South head, the south entrance point of Bay of Islands, is a remarkable headland, separated by a deep valley from the north side of Lark mountain, and rising both from the eastward and westward in black perpendicular

cliffs to an elevation of 815 feet. The shore below is foul for a short distance, from the material which has fallen from the cliffs, but there is no danger beyond 200 yards from the coast. The inshore slope of the headland is covered with grass, which shows in vivid contrast to the dark cliffs.

Northward of Devil head the slopes of the hills are formed of stones, detached by frost, which are lighter in color.

Trumpet cove is formed by a curve in the coast at one mile north-east from Devil head; a stream falls into this cove from a deep valley in South head. The shore of Trumpet cove is composed of dark rock.

Château de Trumpet is an isolated mass of rock, 245 feet high, situated immediately southward of Trumpet cove, and conspicuous from being lighter in color than the adjacent shore.

The coast from Devil head to South head is foul, and should not be approached nearer than 200 yards.

Lark mountain, 1,583 feet high, is the summit of the promontory terminating in South head. It falls steeply on the west and south sides to a marsh that extends from Little port to Lark harbor, and on the east side to a deep valley, the highest part of which is about 500 feet above the sea, and has several ponds which discharge on the north side into Trumpet cove, and on the south side near the landslips before described. A bare hill, 1,455 feet high, with a large boulder at the summit, rises on the north side of this valley, and from it spurs extend to South head, the summit immediately over the head being 1,210 feet high.

A spur extends to the southward from Lark mountain and falls steeply to Lark harbor, the trees on the slopes being partly burnt.

South head falls in steep black cliffs and is bold-to. Several pinacles of light-colored rock are situated at the base, the highest, 110 feet, named the Monkey, being at the north extreme.

The Friar, a peaked islet 31 feet high, lies close to the shore at 300 yards eastward of the Monkey, and a square rock, 16 feet high, lies 250 yards southeastward of the Friar.

South head trends SE. by E. $\frac{1}{2}$ E. to White point (so named from the color of the rock), and thence S. in nearly a straight line for a distance of $1\frac{1}{4}$ miles, to the entrance of Lark harbor. Five remarkable landslips stripe the hillside over the coast immediately eastward of a stream that drains the deep valley in South head; these are reddish in color and contrast strongly with the dark trees on each side. An extensive wood slide, extending from summit of hill to base, is situated about two-thirds of the distance from this stream to the houses in Lark harbor. A wooded valley extends inland close to the eastward of the houses, and the slopes of the hills are generally wooded on their eastern faces.

Bay of Islands.—This extensive inlet, situated on the west coast of Newfoundland, is one of the most picturesque localities in that island, from the high hills surrounding, the steep high islands within, and the deep and tortuous arms which trend from it.

Guernsey island (the Jersey or Wee-ball), $1\frac{1}{2}$ miles long, three-quarters of a mile wide, and 1,053 feet high, is the southwestern of the group lying in the entrance to the Bay of Islands. It falls to the westward in perpendicular cliffs about 800 feet high, and in all other directions precipitously, except to the southward, where the fall is more gradual, and at the extreme of which is the best landing-place in ordinary weather. A low point forms the north extreme, from which shoal water extends nearly 100 yards. A peaked rock lies close to the south shore, and the island is surrounded by masses of rock fallen from the cliffs above. Guernsey island is generally barren, but there are a few trees near the south extreme. In the spring or after heavy rain several streams fall in small cascades over the cliffs, the most permanent falling into a small cove, with a beach of shingle, close to the westward of the south extreme.

Reported rocks.—The rock awash, reported to lie 800 yards NNW. of Guernsey island, was unsuccessfully searched for, nor were any indications found of the shoal of three fathoms water reported to lie between Guernsey and Eagle islands at $3\frac{1}{4}$ miles from the former.

Tweed (French) island, $1\frac{1}{2}$ miles long and 1 mile wide, is separated from the north extreme of Guernsey island by a clear passage two-thirds of a mile wide. The summit, which is bare and 702 feet high, falls in black perpendicular cliffs to the north shore, in a series of hummocks to the westward, and steeply to the northeastward. A deep valley in the middle of the island, down which a stream flows, separates the summit from the hills to the southward, the southeasternmost being 520 feet high, covered with burnt trees, and faced by cliffs, while the easternmost slopes smoothly and is covered with grass, interspersed with small white cliffs and trees.

Rocks.—A round rock, 2 feet above high water, is separated by a channel 30 yards wide, with a depth of 5 fathoms water in it, from the west extreme of Tweed island. Shoal water extends a short distance to the northward and southward of this rock.

A rock that uncovers 4 feet at low water lies nearly 200 yards westward of the round rock. There is shoal water between these rocks, extending 65 yards northwestward of the western rock.

A rock with 2 feet water on it is situated 250 yards westward of the middle of the northwest shore of Tweed island, and the whole of that shore has sunken rocks lying a short distance from it.

Hen island, completely open north of the islet at the northwest extreme of Tweed island, bearing NE. $\frac{1}{2}$ N., leads northward of all dangers.

Coast.—The north extreme of Tweed island is a rugged mass of rock, surmounted by a pinnacle 106 feet above high water. A small rocky islet 17 feet high and bold-to lies close to this extreme.

The northeast shore of Tweed island curves round a small cove with a beach of shingle, and is surrounded by cliffs decreasing in height from the westward.

Little Grassy island is joined to the northeast extreme of this shore at low water. It has a flat summit, 50 feet above high water, and is covered with grass, falling in an overhanging cliff to the eastward.

A sunken rock lies 100 yards northward of this island, and a rock that uncovers, at the same distance to the southeastward, with shoal water extending from it to the shore.

Coast.—The east extreme of Tweed island falls in small black cliffs 40 feet high, the termination of the grassy slopes from the eastern hills. During the summer temporary huts are built on the east shore for the accommodation of fishermen.

Grassy island, 42 feet high, lies close to this extreme, and is steep-to.

Temporary anchorage may be had off the cove between Grassy and Little Grassy islands in from 9 to 12 fathoms water, and also off the cove on the northeast shore in from 8 to 11 fathoms, but a heavy sea rises rapidly with westerly winds.

Little Shag rock is a black rock, 11 feet high, and 265 yards distant from the southeast extreme of Tweed island, to which it is joined by a shoal bank of sand.

A rocky bank with 11 feet water on it lies N. by E. $\frac{1}{4}$ E. 150 yards from Little Shag rock.

The south shore of Tweed island has several small rocks lying off it, but is clear of danger beyond 150 yards.

Hen island bears N. by W. $\frac{1}{4}$ W. nearly 800 yards from the north extreme of Tweed island. It is 350 yards long, covered with grass, and surmounted by a round hummock 222 feet high, which falls in steep black cliffs to the westward and in a low projection to the eastward.

A small black rock lies close to the east extreme, but there is no danger beyond 100 yards from the island.

A rock with 4 feet water on it bears E. by S. 865 yards from the south extreme of Hen island.

Woody (Green) island is surmounted by a round hill 415 feet high, covered with moss at the summit, falling in steep slopes to the eastward, and extending in a wooded projection to the northwestward, the highest part of which is 250 feet high. This island is 1,150 yards long, and is separated from the east side of Hen island by a channel 600 yards wide, with $8\frac{1}{4}$ fathoms least water in it, and from Tweed island by a

channel $\frac{3}{4}$ of a mile wide, in the middle of which lies the rock described above. There is a small rugged cove on the west side of Woody island, containing several rocks, but there are no dangers beyond 100 yards from the other parts of this island.

Saddle island, formerly known as Shag rocks, is half a mile long, 200 yards wide, and distant half a mile from the northeast extreme of Woody island. It is formed by two masses of rock, connected by a narrow ridge; the southern, 170 feet high, is round and covered with grass and a few stunted trees, while the northern is bare and rugged, with a square pillar 150 feet high on the north side, which is prominent when seen from the eastward or westward.

A rocky islet, 58 feet high, is nearly joined to the west extreme of Saddle island, and a rock awash at low water lies 100 yards westward of the islet, with shoal water extending a short distance beyond.

Small islets and rocks border Saddle island, but there is no danger beyond 200 yards from the shore or in the channel between it and Green island.

Gregory island is situated NNE. $\frac{1}{4}$ E. nearly 2 miles from Saddle island, the channel between being free from danger. It falls at the south extreme in perpendicular cliffs from the summit, 245 feet high, and slopes gradually northward to the shore and to a valley which divides the northern summit, 180 feet high, from the southern. The slopes are covered with grass.

A pinnacle of rock, 52 feet high, lies 150 yards westward of Gregory island, and is nearly joined to it by reefs at lower water. A small round islet lies close west of this pinnacle.

Small round rocks lie at the north and south extremes of Gregory island, and dangers extend 100 yards from the north shore and the east extreme.

Brandies rocks are a cluster, 250 yards in diameter, the center of which bears NNE. $\frac{1}{4}$ E. $\frac{3}{4}$ of a mile from the south extreme of Gregory island. The highest and easternmost uncovers 2 feet at low water, and, with two others, shows by breakers, with a slight swell.

Pearl (Big) island, the largest of the group, in the entrance to Bay of Islands, is in the shape of an equilateral triangle, with sides about $1\frac{3}{4}$ miles in length. A deep valley extends through the island at about $\frac{3}{4}$ of a mile from the west extreme, dividing bare conical hills, that attain an elevation of 820 feet on the west, from a flat wooded summit 845 feet high on the east side. Bare spurs, with landslips of gray rock, extend to the north extreme, and a conical wooded hill 710 feet high surmounts the southeast extreme, falling steeply to the eastward. Four curious pillars (the highest of which is 597 feet above high water) stand on the east side of the island, on the north side of a deep valley which divides them from the hill over the south extreme. The

southwest extreme of Pearl island has low rocks extending from it a short distance to the southward and westward, and small rocks and bowlders fringe the west shore generally. A conspicuous waterfall is situated on the northwest shore, at the head of a cove near the north extreme. The north extremes are two points, one on each side of a small cove, the western falling steeply from a flat hill 375 feet high. Shivery point, the eastern of these projections, is gray and rugged, falling steeply on all sides from an elevation of 114 feet.

A rock with 5 feet water on it is situated E. $\frac{3}{4}$ N. 200 yards from Shivery point.

An exposed bight, 250 yards deep, lies southeastward of Shivery point, the eastern extreme being formed by a bare round hill 150 feet high and steep-to.

Big island cove lies SSE. of this round hill, and is completely exposed to easterly winds. Two small beaches of shingle form the head, on which huts are built in summer for the temporary accommodation of the fishermen who frequent the cove. The water is deep, except close to the shore, preventing any but small vessels from anchoring off this cove. A rocky spit extends 100 yards southward of the southeast extreme of Pearl island, and is continued under water 200 yards farther, to a depth of 10 fathoms water.

Cloue patches.—The following dangers are situated northwestward of Pearl island:

A rock with 4 feet water on it lies near the northwest extreme of a bank having over it depths of less than 10 fathoms water and extending northward of the northwest extreme of Pearl island; from this rock the waterfall appears in line with the first fall north of the summit of the island, and the north and northwest extremes of the island appear in line bearing NE. $\frac{3}{4}$ E., the nearer being distant 850 yards.

A rock with 7 feet water over it lies 265 yards from the above-mentioned rock, in the direction of the waterfall.

A bank with $5\frac{1}{4}$ fathoms water on its south end bears WSW. $\frac{1}{4}$ W. 1,700 yards, and another with $8\frac{1}{4}$ fathoms water on it bears W. $\frac{3}{4}$ S. 1,150 yards, respectively, from the north extreme of Pearl island.

Shag rocks consist of two groups situated southeastward of Pearl island. The northern cluster comprises a round islet 20 feet high, lying SE. by E. half a mile from the south extreme of Pearl island, with low rocks extending 100 yards northwestward and 250 yards southward from it. The southern group is composed of a flat bare islet 19 feet high, bearing SSE. $\frac{1}{4}$ E. 800 yards from the highest of the northern group, with low reefs extending 200 yards to the WNW. and E. 700 yards from it.

There is a clear passage between Pearl island and the northern clus-

ter, and also between the two groups, with not less than 23 fathoms water in either passage in mid-channel.

Lark harbor.—Some houses are situated near the water's edge, at the base of low earth cliffs which front a grassy plateau extending to the foot of the spur of Lark mountain.

Great mountain, to the southwestward of Lark harbor, is bare at the summit and on the slope towards the harbor, but is wooded to the eastward. There are several white stripes on the western slopes, which can be seen from seaward over the low land between Lark harbor and Little port.

Little mountain is densely wooded.

Tides.—It is high water, full and change, in Lark harbor at 11h. 8m. Springs rise $5\frac{1}{2}$ feet.

York harbor.—**Seal island** is covered with grass over small gray cliffs, on which grow a few trees in dark patches. It is about 75 feet high.

Governor island is wooded on the shores, but inland there is a large marsh with a lake and some ponds. A few tufts of trees rise above this marsh, the highest being 95 feet above high water.

Coast.—From the head of York harbor the land rises to an elevation of 150 feet (the slope being densely wooded) to a long and wide marsh in the valley separating the coast hills from the main range that extends from Blow-me-down, and which joins the extensive valley of Coal river. A large round lake is situated in this valley.

Bear head, with a sharp peak and steep fall to the northward, may be seen from the Bay of Islands over this marsh, and Caplin cove head in a similar manner over the marsh between Little port and Lark harbor.

On the east side of York harbor is the extreme of a spur from Blow-me-down range, a hill 1,246 feet high, which is covered with shale on the eastern face, and appears as a sharp peak when seen from an easterly direction.

Blow-me-down falls almost perpendicularly from a height of 2,125 feet, and then in a steep wooded slope from the base of the cliffs to the south shore of the Bay of Islands. The range trends sharply to the southward in a line of cliffs, from the foot of which long slopes, covered with shingle or scrubby wood, descend to the valley at the base.

A cascade falls over these cliffs close east of the commencement of the southerly trend, and Big Rattling brook in a large waterfall about 1,600 yards farther to the southward. A bare patch of shale is situated close within the coast line under the north fall of Blow-me-down, and several small pinnacles of rock stand on the slope to the southward.

A deep valley extends to the southward at the base of the slopes from these cliffs, down which flows Bear deadfall brook, a considerable stream. Two conspicuous cones may be seen up this valley when bearing south, the northern being 1,040 feet and the southern 1,035 feet high, both densely wooded on the slopes, but the northern has a small bare space at the summit.

The coast under Blow-me-down is bordered by bowlders and small rocks eastward to Frenchman cove, and forms a slight curve, at the bottom of which Bear deadfall brook discharges to the westward of a point composed of shingle. Rocks that uncover and shoal water extend 200 yards from this point.

Temporary anchorage may be had north of Bear deadfall brook in 9 fathoms, at a quarter of a mile from the shore.

A small yellow rock 6 feet high lies 150 yards from the shore, at 800 yards westward of the mouth of this brook.

Shoal point forms the northwest extreme of the approach to Frenchman cove, and is formed by an earth cliff 33 feet high, from which a reef that uncovers at low water, and shoals, extend to the northeastward 250 yards.

The coast from Shoal point to a shingle beach that forms the north entrance point to Frenchman cove is shoal, a bank of sand that uncovers at low water lying between those points.

Frenchman cove is situated on the mainland, immediately westward of the entrance to Humber river. The west shore is bold-to, but from the mouth of the brook at the head to the east entrance point, a sand bank and bowlders line the shore, extending nearly 150 yards from the high-water line.

Lower Frenchman head (Spurn point) falls from an earth cliff 45 feet high, and is continued by a reef 65 yards northward of the high-water line, falling quickly to deep water. The coast trends sharply south from this point to the entrance of Humber river.

Flat wooded ranges line the east and west sides of Frenchman cove, but to the southward the hills are round and densely covered with trees, to the westward of which, and about $1\frac{1}{2}$ miles distant, are the conspicuous cones before mentioned.

A curious round mound, 117 feet high, covered with burnt trees, lies at the middle of the east shore of Frenchman cove. A small settlement, with a few gardens, is situated here.

Anchorage may be obtained in depths of from 20 to 14 fathoms water in Frenchman cove, the latter depth being found at 130 yards from the high-water line.

Tides.—It is high water, full and change, in Frenchman cove at 10h. Springs rise 6 feet, neaps 5 feet, and neaps range $3\frac{1}{4}$ feet.

Humber river is a picturesque arm of the sea extending SE. by S. six miles, and thence E. $\frac{1}{2}$ S. seven miles.

The banks generally slope steeply from wooded hills, on the sides of which houses are built and fields cultivated, the soil being said to be some of the richest in Newfoundland. It is one mile wide at the entrance, and varies from that to about a mile in breadth throughout the whole extent.

The shores are bold with a few exceptions, and the water deep, affording good anchorage in a few localities only.

Frenchman head, the south entrance point, falls in a steep cliff 220 feet high, to a square bowlder at the base.

The coast from Frenchman head trends to the southward in a slight curve, being fringed by shingle for a distance of $3\frac{1}{4}$ miles, nearly, to Benoit cove, and may be approached to within 100 yards. A wooden Episcopal church with a small tower is situated close to the shore, nearly midway, and a small settlement is built at John's beach, nearly a quarter of a mile distant to the southward of the church.

Benoit cove is formed by a curve in the coast fronting a deep valley that is drained by a considerable stream, utilized till lately for floating logs to a saw-mill at the mouth. A bank that dries at low water, formed by the deposit from the river, extends nearly 300 yards from the mouth, and shoal water continues for a further distance of 100 yards, falling steeply to the northward and eastward.

In the eastern part of the cove is a large store-house, and at the head a wooden church with a small spire, and a considerable settlement.

Anchorage.—Anchorage may be obtained at 200 yards from the east shore, between the large store-house and Fox point (the eastern entrance point), in 10 to 17 fathoms water.

The coast from Fox point trends to the southward for one mile, to Half-way point.

The best anchorage in Humber river is off this part of the shore, depths of 10 fathoms water being found at 400 yards, and of 20 fathoms at 600 yards from the shore, taking care to avoid the following danger:

Reef.—A reef extends 300 yards from the shore, at 1,300 yards from Fox point, and is the only danger in the vicinity.

Coast.—The coast forms a gentle curve for a distance of $2\frac{3}{10}$ miles from Half-way point to Giles point, a low dark cliff backed by wooded hills which attain an elevation of 1,110 feet.

Cook cove is situated in the southern part of this coast, and may be recognized by the deep valley, drained by a considerable stream, which discharges into the cove. A shoal extends 200 yards from the mouth of this stream.

Mount Moriah, a conspicuous wooded hill 625 feet high, falling

steeply to the shore, is situated to the southward, nearly one mile distant from Giles point. **Bannatyne cove** lies under the eastern fall of this hill.

Pleasant cove is divided from Bannatyne cove by a bluff point, and is 400 yards wide and 200 yards deep; a shoal surrounds the head at 100 yards from the shore.

From the eastern entrance point a wharf projects to the northward, at which the local mail steam-vessel discharges her cargo; to the eastward of this wharf a rock and shoal water extends for 150 yards from the shore.

Anchorage for small vessels may be had off Bannatyne and Pleasant coves in 10 fathoms water or less, as convenient, the former depth being found at a little more than 200 yards from the shore.

The magistrate's house, a large two-storied building, stands on an eminence southward of Pleasant cove, to the southwestward of a bare mound 150 feet high, on the summit of which is a large bowlder. The wood in this neighborhood was burnt by a large fire that occurred in 1871.

The telegraph office in connection with the Anglo-American company is in the court-house, a white wooden building on the summit of the slope to the southward of the magistrate's house.

Birchy cove is a small curve in the coast southward of Pleasant cove, and may be recognized by the Episcopal church, a wooden building painted white, with a small spire, and the parsonage, a large two-storied house with a clock in the gable end facing the river.

There is no danger beyond a short distance from the shore of this cove.

Anchorage may be obtained off Birchy cove as convenient, depths of 10 fathoms being found at 330 yards and of 20 fathoms, at 400 yards from the shore. The best position is with the church bearing SW. $\frac{1}{4}$ S. and the easternmost fishing stage SE. $\frac{3}{4}$ S. The anchor should be let go in about 14 fathoms water.

Tides.—It is high water, full and change, in Birchy cove at 10h. 26m. Springs rise 5 feet, neaps rise $3\frac{1}{4}$ feet, and neaps range $2\frac{3}{4}$ feet.

Corner brook is situated $1\frac{3}{4}$ miles southeastward of Birchy cove, and is shoal to the line of De Grouchy point, the west entrance point, and the wharf that projects $\frac{1}{3}$ of a mile from the saw-mill at the mouth of the brook. There is a depth of 15 feet at low water alongside the wharf deepening rapidly to 5 fathoms. A considerable settlement is built near the saw-mill.

Seal head, east of the settlement, is a bare mound of gray rock 180 feet high, falling steeply to Humber river, and bold-to.

The bar, a shallow flat, extends three-quarters of a mile from the head of Humber river and falls suddenly to deep water. Two rocks awash at low water are situated close to the west extreme of this flat.

Great caution should be used in approaching the head, as the lead gives but little indication of the immediate approach to the bar.

Three streams discharge into the head of Humber river. The deepest and southernmost, named the Humber, flows from Deer pond, and is navigable for boats when the stream is not too strong. Large rafts of timber are floated down this stream from the neighborhood of Grand pond.

The central stream discharges into Wild cove, an indentation, half a mile deep, in the middle of the head; and Hughes brook, the northernmost, falls into the northeast part of the head. The mouth of this brook is nearly dry at low water. Deep valleys extend inland from the mouths of these streams, between high hills, those over the Humber river falling steeply, and in some places precipitously, to the banks, culminating in mount Musgrave, 1,780 feet high, a hill having two small sharp peaks.

On the north side of the valley extending eastward from Wild cove is a long range of hills 1,010 to 1,350 feet high, falling precipitously to the flat near the brook, and intersected by deep ravines. A large gray cliff on this range shows prominently from the westward.

The hills between Humber river and Wild cove are flat-topped and in terraces, attaining an elevation of 1,150 feet. The rock on the western face shows a deep blue color in ordinary weather. The west point of Wild cove is formed by earth cliffs about 50 feet high, fronting a table-land of good soil, which extends to the base of the hills.

Between Wild cove and Hughes brook is a wedge-shaped wooded hill 942 feet high, falling steeply to the eastward, with a smaller wooded mound 150 feet high to the southward.

Tucker head, a small gray mound 131 feet high, is situated on the north shore, 1,600 yards from the mouth of Hughes brook.

A small stream discharges immediately westward of Tucker head, the deposit from which has formed a shoal extending 200 yards from the mouth.

Irishtown consists of a conspicuous white house and a few other smaller buildings situated round a small cove westward of Tucker head. Inner Aspen point, the west extreme of this cove, is marked by a conspicuous single aspen tree.

Crow head, a steep bluff 150 feet high, is situated $1\frac{1}{2}$ miles westward of Tucker head. Rood point, close to the westward of Crow head, slopes from a bare whitish mound 74 feet high; it is bold-to and forms the turning point on the north shore of the easternmost bend of Humber river.

The hills rising over this stretch of coast culminate in a bare hill 1,046 feet high, with wooded slopes and bare spurs; those to the eastward of Tucker head rise in a series of wooded cones 745 to 973 feet high.

Petipas cove, situated two-thirds of a mile westward of Rood point, has a considerable settlement round the shores, and a wooden church painted white, with a spire. There is also a saw-mill and several wharves. There are no dangers beyond a short distance from the shore.

Anchorage may be obtained in Petipas cove in 13 to 19 fathoms water, depths of 20 fathoms being found at a quarter of a mile from the shore, but the holding ground is not very good. The best anchorage is with the church bearing NE. $\frac{1}{4}$ E., in depths suitable to the length of the vessel.

A green sward covers the western entrance point of Petipas cove, at the base of a bare hill 470 feet high.

Davis cove, affording no anchorage for vessels, is situated immediately westward of Petipas cove. It may be recognized by a waterfall above the mouth of the brook emptying into the cove.

Meer point is the turning point to the northward of a series of small coves extending for a distance of $2\frac{1}{10}$ miles from Davis cove. It is low and flat, sloping gently from a hill 200 feet high close to the coast, the extreme of a range 660 feet high.

A **rock** that dries $1\frac{1}{2}$ feet at low water lies a short distance from the coast, midway between Davis cove and Meer point.

Guilem cove is situated $1\frac{3}{8}$ miles northward of Meer point, at the mouth of a deep valley drained by a stream, which has formed a shoal extending 350 yards from its mouth.

A **rock** awash at high water lies on this bank W. $\frac{3}{4}$ S. 200 yards from the entrance to the stream.

Anchorage may be obtained in 12 fathoms, with the south extreme of the land near Meer point bearing SSE. and the mouth of the brook bearing NE $\frac{3}{4}$ N. 300 yards from the shore, the depths decreasing gradually to the eastward and southward of this position.

The coast from Guilem cove trends NW. $2\frac{1}{4}$ miles to Bound head, a steep cliff terminating the slope of a densely wooded hill 848 feet high. This coast may be approached to within 100 yards.

A **rock** that dries $2\frac{1}{2}$ feet at low water is situated N. $\frac{1}{2}$ E. 200 yards from Bound head, in the western part of Skeleton cove, which lies immediately north of that head.

Big head, the eastern entrance point of Skeleton cove, is a steep cliff falling from a dark wooded cone 488 feet high. Rattler brook flows to the sea in a conspicuous waterfall 600 yards northeastward of Big head.

Maciver cove (Pig cove) is situated northward of Rattler brook, and comprises several small indentations, faced by beaches of shingle, fronting a gradual slope from wooded hills, and surrounded by houses.

Maciver island is a bare rock, 15 feet high, near the north extreme of the cove, and is joined to the mainland by a shoal.

Anchorage may be obtained between Maciver island and Rattler brook, as convenient, depths of 10 fathoms being found at 400 yards and of 20 fathoms at 600 yards, respectively, from the shore.

The north entrance point to Humber river falls steeply from a wooded hill 595 feet high and terminates in low rocks, but there is no danger farther than 100 yards from it.

Coast.—The coast from Maciver point, the north entrance point of Humber river, trends generally N., with a few small bends, for a distance of $3\frac{1}{2}$ miles, to Middle arm point, and thence east three-quarters of a mile to Black head, the south entrance point of Middle arm, formerly known as South arm. It falls in steep dark cliffs (except near the south extreme, where are a few patches of gray rock) from densely wooded hills, generally flat in outline, and attaining an elevation of 820 feet.

Nearly midway is the mouth of a valley, on the north side of which is a hill 840 feet high. Several small beaches of shingle break the continuity of this otherwise rock-bound shore.

This coast is bold to as a rule, but in several places are small rocks, in no case extending beyond 200 yards from the shore.

Woods or Harbor island, three miles long and $1\frac{1}{2}$ miles wide, is separated by a channel 1,800 yards broad from the north entrance point to Humber river, and by a passage nearly $1\frac{1}{2}$ miles wide from the shore westward of that entrance.

This island is wooded throughout, the northern part rising to a small range of hills 245 feet high, while the southern portion gradually attains an elevation of 195 feet. Low earth cliffs line the north and east sides of the island, falling to the shingle and boulders which form the high-water line.

A small settlement, with a considerable space of cultivated ground attached to it, is situated near the south extreme of the island, and there are several other houses on the east and west shores of Woods island.

A shoal, composed of shingle, with depths of from 1 to 6 feet water over it, extends 550 yards southward of the south extreme of Woods island and deepens rapidly to 6 and 7 fathoms water. The northwest extreme of Woods island is a dark rocky point, off which rocks that uncover at low water extend 150 yards.

The coast is rocky and bold of approach from the northwest extreme to the entrance of Woods harbor.

Woods harbor consists of two bays, the western 600 yards in length and the eastern 1,000 yards long and 400 yards in width.

A reef that uncovers at low water extends 100 yards from the south entrance point, and narrows the passage of 12 feet at low water to a breadth of 95 yards.

Directions.—To enter, keep a grassy point in the middle of the east shore of the harbor just open north of a small round rock lying off the first point on the south shore within the entrance, bearing NE. $\frac{1}{4}$ E.

Within the entrance points the northern shore should be closed to avoid a rock, with 6 feet water on it, situated nearly 100 yards westward of the small round rock described above.

When the points on the west shore of the inner bend are open, the anchorage may be rounded into, and the anchor let go in $3\frac{1}{2}$ to 4 fathoms, mud.

From the southern entrance point of the harbor, where are two houses, a bank that dries at low water extends 100 yards.

The northern entrance point to Woods harbor is the extreme of a peninsula, formed by a conical hill 157 feet high, and joined to the island to the northward by a shingle beach 17 feet above high water. This peninsula is wooded at the summit and on the southern slope, but falls perpendicularly on the north side for half the height, the remaining distance to the base forming a steep slope with grass and shale on it.

The west side of this peninsula is bold-to, but a rocky bank extends to the northward with depths of $3\frac{1}{2}$ fathoms at 150 yards distant; a bank with $4\frac{1}{2}$ fathoms water on it is situated W., a little more than 300 yards from the north extreme.

Coast.—The coast from Woods harbor to the north extreme of Woods island is generally foul, the westernmost danger lying 150 yards from the shore at 700 yards southward of that extreme.

An islet with two summits, the higher and eastern being 72 feet high and wooded, while the western is bare, lies one-third of a mile northward of Woods harbor, and falls in light gray cliffs to the water.

The depths in the channel between this and Woods island are very irregular, changing suddenly from $6\frac{1}{2}$ to 9 fathoms, but there is no danger beyond the bank described before, while the islet may be approached to within 100 yards in all directions.

Puffin islands extend northward of the north extreme of Woods island. The southern island is covered with grass over light-gray rock, and has a group of trees on each of its two summits, which are 91 feet above high water. At the north extreme are three masses of rock, the southern a sharp peak, the middle a square block, and the northern a round lump.

The passage between the southern island and the north extreme of Woods island is a few yards wide and fit for boats only, a rock that uncovers lying in the middle.

The northern island is a round gray rock about 200 yards in diameter, 70 feet high, and covered with grass.

The west extreme of the island is bold-to, but rocks and shoals extend 200 yards from the east side.

Vesuvius rock, with $1\frac{1}{2}$ feet water over it, is the northern extreme of a ledge extending NNW. $\frac{1}{2}$ W. 750 yards from the north extreme of Puffin island.

Outer Shag rock, bearing ENE. $\frac{3}{4}$ E. two-thirds of a mile from Puffin island, is a round dark islet 18 feet high. It is situated on a long ridge that has rocks and depths under 10 fathoms over it, extending in a direction parallel with, and generally 800 yards from, the line of the north extreme of Woods island and Puffin islands.

The northernmost bank, with 9 fathoms water on it, bears NNW. $\frac{1}{4}$ W. three-quarters of a mile from Outer Shag rock.

A rock with less than 6 feet water over it bears NW. by W. $\frac{1}{2}$ W. 400 yards; a bank of 6 fathoms water lies NW. 950 yards, and a bank with $6\frac{1}{2}$ fathoms water on it is situated NNW. $\frac{3}{4}$ W. 1,150 yards, respectively, from Outer Shag rock.

The passages between Outer Shag rock and Woods island should not be attempted, but Pearl island completely open eastward of Outer Shag rock, bearing NNW. $\frac{3}{4}$ W., will lead eastward of all dangers on the ridge before described.

The Hat is a square islet 23 feet high, bearing S. $\frac{1}{2}$ E. 900 yards from Outer Shag rock. Numerous rocks lie between this islet and Woods island.

The shore between the north and northeast extremes of Woods island (the latter being marked by a small peaked rock) should not be approached nearer than a quarter of a mile, and with Pearl island open east of Outer Shag rock; but to the southward of the northeast extreme the shoal bank does not extend beyond 300 yards from the shore.

Anchorage may be obtained off this coast in 12 fathoms water or less, as convenient, but vessels must be prepared to weigh with on-shore winds.

Middle Arm point, situated on the mainland eastward of Woods island, slopes from a long wooded ridge, and falls in small cliffs, having deep water close to it. A small bight is situated immediately eastward of the point, in which are a pinnacle rock and a waterfall.

Middle arm (formerly known as South arm), at its entrance between Black and Northern heads, is one mile wide and expands within to a breadth of $1\frac{1}{2}$ miles. It extends in an easterly direction for $5\frac{1}{2}$ miles, and there separates into two branches, the southern named Goose arm, and the northern Penguin (Penman) arm.

Black head falls in steep dark cliffs 140 feet high, and terminates in large masses of rock which have fallen from above. The coast to the eastward curves slightly with steep cliffs, having shingle at the base, and boulders extending 100 yards from the shore.

Cutwater head, half a mile eastward of Black head, is so named from a slab of perpendicular cliff which forms the extreme of the head. Boulders that uncover, and shoal water, extend 200 yards from the high-water line.

Pigeon head, a steep black cliff, is the eastern extreme of a small curve in the coast extending a quarter of a mile eastward of Cutwater head, and may be approached to within 100 yards.

Jennings cove (French cove) is entered between Parkes beach, a low bank of shingle close east of Pigeon head, and Cox point, $1\frac{1}{2}$ miles farther to the eastward. It is 800 yards deep, but the shores are foul generally for 200 yards from the high-water line.

Anchorage may be obtained in depths of from 14 to 10 fathoms water in the middle of this cove, as convenient, but the depth decreases rapidly from 6 to 3 fathoms at 200 yards from the head of the cove. A few houses are situated in Jennings cove, which is much resorted to for bait by the vessels that trawl off the mouth of the bay. A considerable valley extends inland to the southward of this cove.

Cox cove is separated from Jennings cove by a ridge of wooded hills 810 feet high, terminating in Cox point, a rugged projection falling in small cliffs from a bare isolated mound 97 feet high.

The shores are lined with shingle in slight curves, and a large stream discharges into the head of the cove, the deposit from which has formed a bank that uncovers at low water and extends 200 yards from the shore; there is a depth of 6 feet at 330 yards distant, falling rapidly to 14 fathoms water. Northern head open east of Cox point, bearing NW. $\frac{1}{2}$ N., leads close east of the shoal water off the mouth of the stream.

Cox rock, which uncovers three feet, marks the south extreme of the dry bank and lies under an earth cliff about 60 feet high.

Anchorage.—Temporary anchorage may be obtained in Cox cove in 16 fathoms water, but a considerable sea sets in during strong easterly winds. A few houses are situated on the beach surrounding Cox cove.

Parkes cove is one mile eastward of Cox cove, and is formed by a curve in the coast, faced by a beach of shingle. Boulders that cover lie close to the beach, and shoal water extends 200 yards from the shore.

Anchorage, as convenient, may be had in this cove, depths of 20 fathoms water being found 800 yards from the shore, gradually decreasing to the shoal water extending from the beach. Water may be obtained from two streams which flow into the cove.

A round wooded hill, 570 feet high, rises over the east extreme of Parkes cove, the termination of a wooded range which attains an elevation of 1,060 feet at about a mile inland.

Barasway, a shallow inlet, indents the coast at one mile eastward of Parkes cove. Shallow water fringes the intermediate coast and also the mouth of Barasway for the distance of 200 yards from the shore.

Long point, forming the south entrance point to Goose arm, is the low termination of a densely-wooded round hill 960 feet high, and is bold-to.

Goose arm extends in an easterly direction for a distance of $2\frac{3}{4}$ miles, and thence ENE. for a farther distance of $4\frac{1}{4}$ miles. It is a little more than half a mile wide in the western bend, decreasing to 200 yards in breadth at the Narrows, but expanding eastward of the Narrows to a third of a mile in width in the eastern bend; the shallow basin at the head is three-quarters of a mile wide.

The south shore of Goose arm has deep water close to it, and falls steeply from thickly-wooded hills, traversed by a deep ravine at three-quarters of a mile eastward of Long point. A round hill, 425 feet high, is situated eastward of this ravine, and farther to the southward the hills form an amphitheater round a small pond. The highest point of these hills is 1,129 feet above high water, and is the eastern summit of a range, near the west extreme of which a sharp bare peak rises 1,215 feet above high water and is prominent from the Bay of Islands when Middle arm is open. The eastern extreme of this range terminates in a conspicuous cliff on the south shore of Goose arm at a little more than 2 miles from Long point.

Two conspicuous landslips show in the red earth cliff that lines the shore of a cove at the bend of the south side of Goose arm.

Big Barasway is a shallow inlet, entered between two sand-spits to the eastward of these landslips. It extends some distance inland and receives the waters of a large stream, the roar of the falls being heard from the Narrows of Goose arm.

A shoal bank extends from the landslips, increasing its distance gradually from the shore to a quarter of a mile in breadth off the entrance to Big Barasway.

Raglan (Druid) head is a remarkable headland 1,080 feet high, composed of gray cliff, falling almost perpendicularly to the water on the west side, and sloping to Big Barasway to the southward.

The Narrows are comprised between Raglan head on the south side and the extreme of the smooth slope of a peaked hill, 611 feet high, on which the trees have been burnt, on the north side. They are 200 yards wide from shore to shore, but the navigable breadth is reduced to 100 yards by banks extending from both shores—that from Raglan head

falling suddenly to the channel, through which no greater depth than $4\frac{1}{2}$ fathoms will be found at low water.

The summit of the eastern Sugar loaf (over the head of Goose arm) kept in line with the north extremes of William Wheeler point and of Raglan head, will lead between the shoals on either side, until the land-slip in the curve south of Big Barasway is in line with the boulders on the apparent south extreme of Raglan head, when the middle of the arm may be steered for. A house stands on the north side of the Narrows.

The south shore of the eastern bend of Goose arm, eastward of Raglan head, slopes steeply from wooded hills, succeeded by bold buttresses of reddish cliff, which attain a maximum elevation of 920 feet. This line of cliffs continues, with a few gaps, to the head of the arm.

William Wheeler point is the termination of a low marsh at the base of the cliff on the south shore of Goose arm, $2\frac{1}{2}$ miles eastward of the Narrows, and forms the south entrance point to the basin at the head; this is a shallow expanse, three-quarters of a mile wide and $1\frac{1}{4}$ miles in length from William Wheeler point.

Depths of 4 fathoms water will be found off this point, but there is not more than 2 fathoms water at 400 yards to the eastward, and the basin dries at low water from a farther distance of 400 yards to the head.

Several large streams flow into the head of Goose arm, but their mouths cannot be approached, even in boats, until half flood.

Sugar loaves are two remarkable cones, the southern 827 feet and the northern 873 feet above high water, situated $1\frac{3}{4}$ miles eastward of Goose arm. Deep valleys extend inland on each side of these hills, between high ranges faced by cliffs.

The hills on the north side of Goose arm attain their greatest elevation in a hill 959 feet high, which falls in a gray cliff to a valley on the north side of the head; the slopes are all thickly wooded.

The north shore of Goose arm slopes from hills, the trees on which have been burnt, and have no remarkable feature. In the western bend is a steep gray cliff, extending to the coast line, under a bare hill 750 feet high.

Penguin cove is situated on the north shore, immediately within the entrance to Goose arm, and is free from danger.

Anchorage may be obtained in 14 fathoms water at 300 yards from the head of this cove, but the holding ground is not good.

Penguin head (White head), the dividing point between Goose and Penguin arms, is the extreme of a remarkable, flat-topped, isolated, and bare gray hill 1,020 feet high, which has on it a few trees and is bold-to.

It falls in almost perpendicular cliffs to the northward and westward, and in a long slope to Penguin cove.

Penguin arm (formerly known as Penman arm) extends with a slight curve $3\frac{1}{2}$ miles NE. from Penguin head, and is free from danger, having deep water. There is no secure anchorage for large vessels in this arm, though schooners seeking bait anchor near the shore in the curves of the coast.

Penguin hills are two conspicuous cones, 820 and 778 feet high, covered with wood, and situated on the south shore of Penguin arm, $1\frac{1}{2}$ miles eastward of Penguin head.

Deep cove is at the base of the eastern fall of these cones and $2\frac{1}{2}$ miles northeastward of Penguin head. The head of the cove dries at low water for a distance of 250 yards from the coast, and the water deepens rapidly beyond the low-water line.

The head of Penguin arm dries for the distance of a quarter of a mile from the mouth of the streams discharging into it and then falls quickly to deep water.

The hills on the south side of the head fall to the arm in light-gray perpendicular cliffs from a range of hills, the highest point of which is 1,146 feet above high water, and terminates to the southward in a steep slope to Deep cove.

Those on the north shore form a continuous range with an almost unbroken outline, and attain an elevation of 945 feet at a quarter of a mile distant from the shore. A deep valley extends inland from the head of Penguin arm.

Woman point is the turning point on the north shore to Penguin arm. It is a wooded mound, 250 feet high, falling in gray cliffs to some large rocks at the water line, and is bold-to. A waterfall flows into the arm at a short distance eastward of this point.

Woman cove has a small beach at the head, and lies immediately west of Woman point.

Coast.—The north shore of Middle arm falls generally in gray cliffs, fronting densely wooded hills, but has no danger beyond a few yards from the shore.

Seal cove, on the north shore, at $1\frac{1}{4}$ mile from the entrance to Middle arm, is an indentation 400 yards deep, but affords no shelter, shoal water extending 250 yards from the head. Seal head, a perpendicular cliff, is the south entrance point to this cove.

Old Woman head, a remarkable hill 1,020 feet high, stands about midway between Middle and North arms. It falls in a steep cliff to the southward and in a sharp fall to the northward, and shows conspicuously over the coast ranges.

Northern head of Middle arm falls in a steep cliff about 300 feet high, with curiously thin stripes of quartz following the stratification,

which is much contorted. The coast curves to the northeastward round a small cove, at the head of which is a streamlet, and the striped veins of quartz show as far as North arm point. This shore is foul for a distance of 350 yards.

Eagle island, 112 feet high, 600 yards long and 200 yards broad, lies northwestward $1\frac{1}{4}$ miles from Northern head. The west side falls in steep cliffs, striped vertically with red and gray rock, and near the northwest extreme is a conspicuous mass of sandstone projecting from the other rock of which the island is composed. The east shore slopes steeply in a grassy sward to a beach of shingle at the base.

Low rocks and sunken dangers extend 200 yards from the north and south extremes.

Fisherman rock, with two feet water on it, lies in the channel between the mainland and Eagle island, at a little more than a mile from the north extreme of that island, and 1,400 yards, nearly, from North arm point.

A shoal with 17 feet water lies nearly in mid-channel between Eagle island and the mainland, and 1,200 yards from the north extreme of Eagle island.

A plateau, with depth of nine fathoms and less, connects Eagle island with these shoals and with the mainland to the eastward.

North arm is entered between North arm point (Breast point) to the southwestward and Stowbridge head to the northeastward, and is nearly two miles wide at the entrance, from which it extends with one bend for a distance of eight miles to the northeastward.

North arm point (Breast point) is the extreme of a narrow promontory, surmounted by a peaked wooded hill 240 feet high, and falling in slate cliffs from a small grassy plateau 35 above feet high water. Rocks that uncover at low water extend a short distance from the cliffs, but the water deepens rapidly to the westward.

North arm cove is formed by a small curve in the coast at half a mile from North arm point, and has a beach of shingle at the head.

The anchorage here is not good, but temporary stay may be made by small vessels, in 14 fathoms water, off the middle of the cove, the water shoaling rapidly from thence to the beach.

The south shore of North arm falls steeply from thickly wooded hills and is faced by small cliffs variously colored. Shoal water extends generally about 200 yards from the coast, deepening rapidly beyond.

Cove.—An open cove, 1,200 yards deep, with a beach of shingle 700 yards long at the head, is situated on the south shore of North arm, $4\frac{1}{4}$ miles eastward of North arm point.

A rocky bank with 6 fathoms water on it lies in the entrance to

this cove at 400 yards from the north shore, and a shoal also extends from the south shore at a quarter of a mile from the head, with depths of from 5 to 7 fathoms water over it.

A round wooded spur 560 feet high slopes to the middle of the head of this cove.

The north entrance point is composed of jagged slate rocks fronting a small cliff, the extreme of a round wooded hill 515 feet high. Foul ground extends nearly 200 yards from this point. A bank with 10 fathoms water over it lies a quarter of a mile distant; and a shoal with nine fathoms water on it lies W. $\frac{3}{4}$ S. 800 yards from its south extreme.

Harbor cove is entered to the eastward of this point, and is three-quarters of a mile deep and about 300 yards wide. There are no dangers in Harbor cove, though a small bank with 5 fathoms water over it extends a short distance from the south side of the narrowest part of the cove, and the water at that place is generally shallower than in the inner part of the cove, forming a bar, but there is not less than 11 fathoms in mid-channel. A small islet lies close to the north side of the head.

Water may be obtained from a cascade which falls into the east side, and from a considerable stream discharging into the head of the cove.

Both sides of Harbor cove are wooded, but there is a bare patch on the south side, and a bare sharp-peaked hill 325 feet high divides the two valleys at the head; the summits of the ridge on the north side, to the eastward of the head of the arm, are also bare.

Coast.—The south shore of North arm, eastward of Harbor cove, is surmounted by wooded hills from 300 to 400 feet high, and is free from danger beyond a short distance from the coast.

At the head is the mouth of a shallow stream, flowing from a deep valley that extends many miles inland between high ranges of hills.

The water is deep, and there is no convenient anchorage in the whole of this part of the arm except for small vessels.

A bank with 17 fathoms water over it lies in the middle of North arm, at $1\frac{1}{2}$ miles distant from the head.

Pond point, the turning point on the north shore of the bend in North arm, is a small bluff 30 feet high, covered with grass and a few trees, situated southward of the small sheet of water from which the name is derived.

Coast.—The coast from Pond point trends generally W. by N. seven miles to Crabb point, and thence NNW. $\frac{3}{4}$ W. four miles to Beverley head; the easternmost part of this coast for $2\frac{1}{4}$ miles forms a nearly straight line at the base of the precipitous slope of a flat, brown, and bare range 1,830 feet high. This land is distinct in color from all the coast to the westward, which is of considerably darker shade.

Stone brook flows down a deep gorge to the northward of this ridge and discharges immediately north of a bluff head 103 feet high.

Stowbridge head is a square mound, 87 feet high, situated westward of Stone brook, on the west side of a small shingle beach, on which are some houses.

A black rock, 12 feet high, lies in the cove west of Stowbridge head.

The coast westward of this cove falls in small cliffs, with an outlying small islet 10 feet high.

Liverpool brook discharges through a shingle beach at the mouth of a deep valley flanked by an amphitheater of high hills; those to the eastward, fronted by a gray slope, attaining an elevation of 1,050 feet, and a high flat range farther to the eastward a height of 1,347 feet above high water.

Anchorage may be obtained, with off-shore winds, southwest from Liverpool brook, in 18 fathoms.

A few houses are situated on the shores of Liverpool cove westward of Liverpool brook.

A conspicuous round hill, 1,585 feet high, is situated $1\frac{1}{8}$ miles north-eastward of Liverpool brook, which slopes in a long ridge to a small peak, 1,117 feet high, and thence steeply to the coast. This round hill is used as a mark to clear the shoal extending from the south point of Woods island.

Buck head, the western extreme of this peak, is composed generally of dark rock, but near the east extreme is a conspicuous patch of light rock 50 feet high.

Upper Crabb brook discharges at the north extreme of the curve, in a beach of shingle extending from Buck head to Crabb point, and distant one mile from the former.

A flat of sand and stones extends to the southward, depths of 3 fathoms being found at 200 yards and of 10 fathoms at 400 yards from the shore. Several houses are built close to the mouth of this brook.

A shingle point projects to the southward, at 800 yards westward of Upper Crabb brook; S. by E. $\frac{1}{4}$ E., 300 yards from which is a shoal with $4\frac{1}{2}$ fathoms water on it, the water deepening suddenly to 12 fathoms to the southward of the shoal.

Lower Crabb brook is a large stream discharging at the west extreme of the beach of shingle, and draining a deep valley which extends inland to the foot of the north slope of mount St. Gregory. The hills on the right bank fall steeply to the brook, but to the eastward in a long wooded slope with a few patches of grass. Several houses stand close to the mouth of the brook.

A bank extends from the shore to the eastward of the mouth of

Lower Crabb brook for 330 yards to depths of three fathoms, falling suddenly from 7 to 30 fathoms at a farther distance of 200 yards to the southward.

Crabb point falls in low dark cliffs from a small wooded hillock 215 feet high, the southernmost extreme of a long stony ridge that extends to the northeastward and culminates in mount St. Gregory. This is the turning point into the Bay of Islands, and a rock lies close to the south extreme.

Coast.—The coast trending sharply to the northward from Crabb point is bordered by small rocks, and should not be approached within 200 yards. The stony range falls precipitously from the summits in light-gray cliffs, and thence in shale to the water-line, till north of Davis cove, when long grassy slopes succeed, with a few wooded hillocks.

Upper Gull rocks consists of two small islets, seven feet high, and some lower rocks, joined at low water to the shore at $1\frac{1}{2}$ miles northward of Crabb point; they are bold to on the north side.

Lower Berth cove is formed by a curve in the coast to the northward of Upper Gull rocks, the south extreme being marked by a peaked rock 22 feet high, and the north extreme (Green point) is curiously striped with black and white rock. A stream falls into this cove over earth cliffs colored brown and gray in patches, and the shore is fringed by suken rocks to the distance of 200 yards.

Lower Gull rock is a small brown islet, 22 feet high, 150 yards from the shore (to which it is nearly joined at low water), and $1\frac{1}{2}$ miles northward of Upper Gull rocks.

The Friar, a perpendicular mass of rock about 60 feet high, terminated to the westward by a small rock with a white top, is situated 1,200 yards northward of Lower Gull rock.

Davis cove, between Lower Gull rock and the Friar, is generally a resort of fishermen during the summer, who build temporary huts there. A considerable stream flows through the beach of shingle at the head of this cove.

Beverley cove, a semicircular basin 100 yards in diameter, is situated nearly $1\frac{1}{2}$ miles northward of Lower Gull rock, and is generally frequented by fishermen during the summer months.

It is surrounded by black rock and is shallow, except in a small creek immediately eastward of the south entrance point, where the boats are moored and are sheltered by a reef extending nearly across the entrance.

A black pinnacle, 24 feet high, stands close north of Beverley cove.

From this to the south extreme of the beach at North head the coast is fringed by black rocks varying from 20 feet in height, to others that show only at low water.

Beverley head is a flat wooded ridge northward of Beverley cove, culminating in a round summit 460 feet high, falling in black cliffs to the sea, and in wooded slopes to a plain on the east side. Beaches of sand and gravel line the base of these cliffs.

The Green Handkerchief is a remarkable grassy sward on the cliff near the southwest extreme of Beverley head and 700 yards from Beverley cove; it shows conspicuously from seaward, being bright green during the summer months and of a yellow hue during spring and autumn.

A similar sward, but much smaller, is situated a short distance northward of the Green Handkerchief.

A conspicuous waterfall flows over dark black cliffs half a mile southward of North head. From the mouth of this stream a rocky ledge, that nearly dries at low water, extends 150 yards and makes landing difficult for boats. A small headland, with dark cliff, in which at some elevation is a large cave, lies between the waterfall and the shingle beach extending to North head. Through this beach flow two small streams.

North head is an earth cliff, 54 feet high, fronting a marshy plateau that is generally green in summer. It is fringed by bowlders that uncover at low water, extending 150 yards from North head, and continuing about the same distance from the coast to the northward. This shore should not be approached nearer than half a mile.

Rocks.—Two rocks with 2 feet water on them lie W. $\frac{1}{4}$ N. 400 yards from North head.

Banks with less than 10 fathoms water on them extend $1\frac{1}{2}$ miles seaward from North head.

Mount St. Gregory, the highest peak in this neighborhood, appears as a truncated cone when seen from the westward, with a small square mass of broken rock in the middle, 2,225 feet above high water. From the southward it presents the appearance of a sharp peak, falling steeply in all directions. The hills decrease in height to the northward, and slope to a large valley drained by a stream that flows into Chimney cove.

Chimney cove head falls to seaward in steep cliffs from a round elevation, on the south slope of which is a conspicuous green sward extending from summit to base.

Chimney cove is situated immediately southward of the head, and is foul for a considerable distance from the shore. A few houses are built on the shores of this cove.

Tides.—From observations made in the month of June, 1831, no law could be deduced for the tidal streams in Bay of Islands. On June 13th (moon's age 16 days), from 8h. 20m. a. m. till 6h. 45m. p. m. the

stream set with a slight curve in an E. direction from Guernsey island, while from 9h. 20m. a. m. to 5h. 10m. p. m. of the same day it ran nearly N. by W. from Pearl island, and at the same time set with a velocity of about a knot an hour up Middle arm.

During the months of May, June, and July the surface stream of Humber river ran almost continuously toward the sea, while an under-current was found to run in the opposite direction. This westerly stream is split by Woods island, and runs with a velocity of nearly $1\frac{1}{2}$ knots an hour over the shoal at the south extreme of that island. The easterly stream also converges to the mouth of Humber river round Woods island, decreasing in strength on the surface as it nears the river.

Through the Narrows of Goose arm the tide runs with a velocity of two knots an hour at springs, the time of turn of stream being irregular with respect to the high water, varying with direction of the wind and quantity of water discharged by the streams at the head of the Arm.

Near all shoals and banks, especially in the neighborhood of Vesuvius rock, a marked stream was found not governed by any apparent law, but attaining occasionally a velocity of $1\frac{1}{2}$ knots an hour close to the shoals, though scarcely perceptible at a quarter of a mile from them.

Population.—The residents of the Bay of Islands and neighborhood are of mixed nationality, comprising descendants of deserters from French vessels of war, former inhabitants of the east coast of Newfoundland (principally of Irish descent), and natives of Nova Scotia, the last-named being employed principally at the saw-mills. These inhabitants numbered 1,316 by a census taken in 1874.

Gregory river is situated just south of cape Gregory, $5\frac{1}{2}$ miles from Gregory island. The entrance of this river is very apparent through a bank of sand and shingle on which are situated some huts. Anchorage, with shelter from off-shore winds, may be had off this river in 5 to 7 fathoms, outside the heads forming the cove.

Trout river, $7\frac{1}{2}$ miles from cape Gregory, discharges into a small cove with a sandy beach, within which stand some houses. Anchorage may be had in a small vessel in 8 or 9 fathoms, sand. The soundings shoal gradually to the shore, but it is not advisable to anchor within the head forming the west side of the cove; near the head are several rocks above water.

The Soldier, a conspicuous red pinnacle rock, is situated a short distance east of Trout river, and stands out clear of the coast. This and the reddish color of the land afford good marks for recognition in this neighborhood.

Bonne bay, 25 miles from the Bay of Islands, is easy to recognize by the high cliffy lands that form the south shore. The north shores are comparatively low, but at 3 miles inland there are high hills inter-

sected by deep ravines. The bay is nearly 2 miles wide at the entrance and runs in a southeasterly direction $4\frac{1}{2}$ miles, when it separates, South arm extending $4\frac{1}{2}$ miles from Woody point, the west point of the entrance, and East arm extending east a mile and then subdividing, the main arm trending southeast 6 miles nearly and Deer brook north $1\frac{3}{4}$ miles.

South arm contains the best anchorage in Bonne bay, at the head in 20 to 22 fathoms, and there is no danger in the arm. Small vessels anchor in a cove under Woody point, but it is not safe for more than two, which moor close to the shore. The coasts of this arm are wooded to the sea, and the hills over the southwest part are very steep. Large vessels may anchor for a short stay in 33 fathoms, just south of Woody point.

East arm.—The north point of the entrance has shoal water extending 600 yards, and in entering, the south shore must be kept on board to get the deepest water over the bar that crosses the entrance, over which 5 to 8 fathoms may be carried.

Indian cove, situated just inside the north entrance point of East arm, is half a mile long in a southeast and northwest direction, and 400 yards broad; the entrance, which is open to the southward, is nearly 400 yards wide, and has 9 to 11 fathoms in mid-channel; there is a depth of 2 fathoms at 150 yards from the northeast point of the entrance, and 4 fathoms about 100 yards from the southwest point.

Well-sheltered anchorage, with good holding ground in 7 to 8 fathoms, sand and mud, will be found in the center of the cove, at about 600 yards within the entrance.

Indian cove, although small, is therefore recommended in preference to the anchorages at the heads of East and South arms of Bonne bay, which are by no means safe, especially during the fall of the year.

Tides rise about 5 feet in Indian cove.

Deer brook affords good anchorage, the water shoaling gradually from 30 to 7 fathoms. Vessels should anchor in not less than 20 fathoms, mud, in the center of the brook. The main portion of the East arm contains water too deep for anchorage. On the south shore of the entrance to Bonne bay is a remarkable pinnacle on the summit of the coast line called "la Bouteille" from its resemblance to a bottle.

Vessels bound into or out of Deer brook should keep close to the south shore when going through the narrows near Indian cove, to avoid the shoal ground extending to the southwestward from the promontory forming the north side of the narrows.

Winds from SW. and west produce violent squalls, succeeded by calms, very dangerous for a sailing vessel, and straining the cables of vessels at anchor.

Tides.—It is high water, full and change, in Bonne bay about 10h. Springs rise 6 feet. The tidal streams run generally, ebb east and flood west, for six hours each. In the narrow entrance to East arm the streams are very strong.

Roche harbor lies on the east shore of the entrance to Bonne bay and is open to west; it is a mile deep and half a mile wide. From the south point a chain of rocks, that nearly cover at high water, stretches about a quarter of a mile, sheltering a little boat cove, with a sandy beach and some houses. Anchorage may be had NE. by N. from the houses in $6\frac{1}{2}$ fathoms, good holding ground, 200 yards from the shore. This harbor may be recognized by the high hill on the north shore, and a round green hill half a mile inland and $1\frac{1}{2}$ miles to the northward of Roche harbor.

The coast from Roche harbor to Cow head is low. The high lands are about 4 miles from the coast, which is steep and indented by deep and remarkable ravines. The shore is fringed by shingle to a group of houses $3\frac{1}{2}$ miles from Roche harbor, north of which is a small bare cliff to the south of a low point.

Martin point, 5 miles from Green point, is a low white cliff, with several houses north of it and south of a ravine.

A reef that uncovers is situated NW. 1 mile from Martin point, and generally breaks.

A rock is situated SW. $\frac{1}{2}$ W. $2\frac{1}{2}$ miles from Martin point and $1\frac{1}{2}$ miles off shore.

Broom point, $3\frac{1}{2}$ miles from Martin point, is fringed by rocks extending about half a mile. The coast between these points is low. At $4\frac{1}{2}$ miles inland is a remarkable ravine in the hills, formed by two immense walls of rock, showing conspicuously from seaward.

St. Paul bay lies north of Broom point, and St. Paul river discharges into the head. The bay is quite exposed, except with winds from south to east.

Cow head, a peninsula a mile long and half a mile wide, is situated about 20 miles NNE. of Roche harbor. The summit is 213 feet high and is readily distinguished. The isthmus joining it to the main is narrow and low, separating Cow cove on the west from Cow head harbor on the east side. Cow cove affords temporary anchorage in 10 to $5\frac{1}{2}$ fathoms, sand, with shelter from winds from north by east to south, but it should be quitted immediately winds begin to blow from the westward. The head of the cove is shallow for 600 yards from the isthmus. Cape point, the west extreme of Cow head, should not be approached nearer than 400 yards, but the north shore is steep-to.

Cow head harbor is fit for small vessels only, and should not be

entered without buoying the dangers, unless well acquainted with the entrance. It is formed by Cow head and White rock bank, joined to the east shore by a sand bank.

The entrance is obstructed by the following dangers:

Tortoise rock, that uncovers, close off the shoals of Cow head.

Thorn rock, awash, situated at the extreme of the White rock bank

A shoal, with 7 feet water, lying S. by W. of Thorn rock, and a rock, with 6 feet water, between this shoal and Tortoise rock. There is, however, a tortuous passage, with 16 feet water, south of Tortoise rock, but not more than 10 feet can be carried in direct. When inside these shoals, anchor in $2\frac{1}{2}$ to $3\frac{3}{4}$ fathoms, sand. This harbor is renowned for the spring herring fishery. The fish arrive in great quantities in May, and remain from ten to fifteen days.

Tides.—It is high water, full and change, at Cow head harbor at 10h. 41m. Springs rise $8\frac{1}{2}$ feet, neaps 5 feet. The tidal streams are often very strong off this coast, following irregularly the line of the shore; the flood to NE. attains a velocity at times of 3 knots.

The cove east of White rock bank is reported to afford better shelter than Cow head harbor with westerly winds, but it is completely open to northeast.

Steering island, three-quarters of a mile NNW. of Cow head, is 23 feet high, and dangerous at night from shoals stretching west, north, and east 600 yards. It is composed of white rock, surmounted by a little grass, and may be approached to 300 yards from the south side.

Evangeline bank, recently discovered east of the passage between Steering island and White rock bank, has on it 14 feet least water. Several shoal heads, with 3 fathoms water, have been found occupying a space 1,400 yards in diameter, with the center bearing ENE. from the small cliff at the east end of Steering island and NW. $\frac{1}{2}$ W. from the east extreme of White rock bank.

This channel should not, therefore, be used by large vessels.

The coast northeast of Cow head is low, with the exception of a remarkable wooded mound, with two summits, 5 miles from Cow head. The hill ranges are 6 miles in the interior, and are intersected by deep ravines; one of these, wider and more remarkable than the rest, has a landslip south of it, and is situated E. from the wooded mound.

Stanford river runs in from a cove just south of the wooded mound. The north shore of this cove and the coast for 2 miles to the northward are fringed by boulders awash at low water.

Sandy bay is 9 miles from Cow head. The south point is a yellow cliff, the first met with in coming from the south. The head of the bay is very low, and there are several houses.

Portland is an isolated, high, wedge-shaped hill over the sea, 21½ miles northeast of Cow head, easy to distinguish from all directions. On the coast 2 miles south of Portland are several rocks worn to a mushroom shape by the sea, called Cow and Bull.

The coast north of Portland is low and wooded, faced by a beach for 2½ miles, and then rocky cliffs to Portland creek, a small cove. After this the beach is again found interspersed with small cliffs. East of Portland the ranges are within 3 miles of the coast, and a little north is a deep ravine, with Gros Pâté, a remarkable truncated cone with very steep sides, exactly at the mouth. A group of houses is situated on a rocky point 6 miles from Portland.

Table point, 13 miles from Portland, is a low, rocky, sharp cliff, the north extreme of a series of small beaches. From it the shore is bordered by shingle in front of woods. East of Table point the ranges are 6 miles from the coast, and gradually increase that distance as they trend to the northward.

Mall bay, 9 miles from Table point, is completely open to seaward. At the head is a yellow-colored cliff, south of which Ponds river discharges. Small boats can go in with difficulty against the stream, which is strongest in spring. Little river discharges north of the yellow cliff.

Temporary anchorage may be had a quarter of a mile off the cliff, with the entrance of Ponds river open, in 8 to 10 fathoms.

Caution should be used in navigating between Cow head and Mall bay, until the coast has been more thoroughly examined.

The coast from Mall bay is again wooded, and rises gradually. A conspicuous yellow patch is on the coast 1½ miles from Mall bay, just south of Eboulement point. Off this point rocks and shoals extend north a little more than half a mile.

Ingornachoix bay lies between Eboulement point and Rich point, nearly 6 miles distant. It is 3½ miles deep and is completely exposed, but with off-shore winds temporary anchorage may be had north of port Saunders in 10 fathoms, or in the spacious arms at the head.

Keppel island, at the head of the bay, lies off the entrances to Hawke and Keppel harbors and port Saunders. It is not easy to distinguish, the outer part being a blackish cliff, on which is a large cross. The island is a mile long and continued to the eastward by Cod-tail, a shingle spit that covers at high water and is steep-to. The other shores of the island are bold. Trapper cove, a shallow bight, lies just west of the entrance to Hawke harbor.

Hawke harbor is entered between Keppel island and a low wooded point to the southward.

A dangerous sand bank extends from the south shore nearly 800 yards, narrowing the entrance to 600 yards between it and the peninsula that forms Keppel harbor.

Keppel point, the north extreme of this peninsula, is continued by foul ground for 400 yards nearly on its north and west sides. Robinson island, off Lossieux point, the south extreme of this peninsula, is joined to it by shoal water, but is steep-to on the west side. Shoals extend east nearly 400 yards.

Hawke bay extends E. $4\frac{1}{2}$ miles nearly from Robinson island, and is $1\frac{1}{2}$ miles in mean breadth. The south shore curves east of Robinson island to Ourson point, off which shoals lie nearly 600 yards. The south coast of the bay is foul, the north shore is clear, except Cook bank, and there is a salmon fishery at the head, from which shallow water extends one-fourth of a mile.

Anchorage may be had anywhere in the bay in 18 to 7 fathoms, mud, taking care to avoid the following dangers:

Cook bank, with 16 feet, lies NE. by E. $\frac{1}{2}$ E. a little more than $1\frac{1}{2}$ miles from Robinson island, leaving a passage between it and the north shore 300 yards wide.

Commander shoal, with 9 feet water, lies nearly half way up the bay, on the south side, off a cove with a rocky point in the middle, and extends nearly a third of the distance across the bay. Cible point, south-east of this shoal, will be easily recognized, being the only cliff in the bay, the other portions of which are low, and faced by shingle, sand, or flat rocks. Cible shoal extends 300 yards from this point.

Gull shoal, with 5 feet water, lies close off the point next east of Cible point, and is steep-to on the north shore.

Water is most conveniently obtained from the stream between Cible and Gull points.

Tides.—It is high water, full and change, at Hawke bay at 11h. Equinoctial springs rise $6\frac{1}{2}$ feet. At the east part of the bay the tidal stream is strong enough to keep vessels riding athwart a good breeze, and the streams are strong in Hawke harbor.

Directions.—Large vessels should steer west of Robinson island, and may approach it as close as 140 yards, but it is better to keep mid-channel. After passing the island steer for Great point, the east extreme of the north shore of the bay, on which there is a remarkable flat rock, and when past Ourson point anchor as convenient.

Keppel harbor, southeast of Keppel point, is a mile long and nearly a quarter of a mile wide, but shoal water extends a third of a mile from the head. By following along the south shore of Keppel island the har-

bor will open, and by keeping in mid-channel anchorage may be obtained in 6 fathoms about a third of a mile within Keppel point.

Saunders point divides Keppel harbor from port Saunders, and may be approached to a distance of 200 yards.

Anchorage may be had between this point and Cod-tail in 11 fathoms, mud or sand, and is much frequented by fishermen.

Port Saunders is entered northeast of Keppel island, between Saunders point and a wooded hill with two summits on the north side. The entrance is 400 yards wide, and from it the harbor runs $2\frac{1}{2}$ miles, with a mean breadth of half a mile nearly.

A little within the entrance, on the north shore, is a steep bank of shingle.

Montaignac rock dries at low water, is situated a mile from the entrance, and a third of the distance across from the south shore. The cross on Keppel island, kept open north of Saunders point, leads north of this rock.

Dunlop spit extends 400 yards from Kent point, which is low and bare on the north shore, and has 3 feet water at the extreme.

Directions.—Anchorage may be had inside the entrance, between it and Montaignac rock, in 14 to 7 fathoms; but if proceeding to the head of the bay, the mark for clearing Montaignac rock must be kept on till within 400 yards of Kent point. A SE. by E. course will lead between Montaignac rock and Dunlop spit, and when the points of north and south shore are in line Dunlop spit will be cleared, and anchorage may be had in 6 to 7 fathoms just south of that mark. Off nearly all the shore of port Saunders bowlders that dry at low water extend 40 to 60 yards from the beach, and make the landing bad at low water.

Tides.—It is high water, full and change, in port Saunders at 10h. 45m. Equinoctial springs rise 6 feet.

Gargamelle cove, 2 miles east of Rich point, is fit for boats only, as SW. sea fills it completely. At the head of this cove is the isthmus, 300 yards broad, that separates it from Old Port au Choix and joins Rich point peninsula to the main.

Rich point, the north limit of Ingornachois bay, is the west extreme of Rich point peninsula, and is bold-to.

Light.—From a white hexagonal tower on this point a white light, showing a *flash* every fifteen *seconds*, is exhibited at an elevation of 130 feet above high water, and is visible 18 miles in clear weather. The keeper's dwelling near it is painted white.

Rich point shoal, with 9 feet water, lies NW. by W. $\frac{1}{2}$ W. 850 yards from the light-house, and is steep-to, with a clear passage between it and the shore.

A shoal, with 3 fathoms, is reported to be situated WNW. three-quarters of a mile from the extreme of Rich point.

Clearing marks for Rich point shoal.—The left extreme of the cliff on Keppel island, open west of Rich point, leads west, and Round head, open north of Black cape, leads north of this shoal.

Rich point peninsula is flat, of gray rocks, and terraced, with several crosses on the summit and slopes.

Port au Choix is on the north coast of the peninsula, 2 miles from Rich point, and is accessible to vessels drawing less than 11 feet water. It is half a mile deep, the entrance is 120 yards wide, narrowed to 50 yards by Le Malouin, a shoal off the south shore.

Ilot Bénie lies 250 yards within the entrance, and is joined to the north shore by a sand bank. The anchorages are west and east of this islet.

To enter, keep a third of the distance across the entrance from the north point, and anchor in 13 feet between it and ilot Bénie, or if wishing to make a long stay, wait for high water and round ilot Bénie to an anchorage between the two fishing stages on the east shore, in 11 feet water.

Tides.—It is high water, full and change, in Port au Choix at 10h. 47m. Springs rise $7\frac{1}{2}$ feet. Winds from westward bring a swell into the outer anchorage.

Barbacé cove is a small boat cove three-quarters of a mile from Port au Choix, but affords no shelter with westerly winds. The east point of the peninsula, Barbacé point, has shoals extending 300 yards from it.

Old Port au Choix, on the southeast side of Rich point peninsula, is separated from Port au Choix by an isthmus 300 yards broad, across which there is a path.

The harbor is a mile long, is entered by two channels, one on each side of a small islet, is a quarter of a mile wide at the entrance and half a mile at the head. The north shore is fringed by shoals, part of which dry at low water. The south shore is nearly bold-to.

Querré islet, in the middle of the entrance, is bold-to on the north side, but the other shores are foul.

Savage island, three-quarters of a mile east of Querré islet, is nearly joined to it by a chain of rocks and shoals, is 50 feet high, and has several fishermen's huts on it.

Savage rock lies northwest of this island, and the latter is joined to the main by a bank, with deepest water of 3 fathoms over it. Ardent rock lies west of Querré islet, and is joined to the north shore by shoal water. Ardent tail is a shoal extending northeast 200 yards from Ardent rock.

Beacons have been erected to enable vessels to clear these shoals. A cross has been erected on the west extreme of Querré islet, and a similar mark on a small cliff south of the entrance to the harbor. Pyramids have been placed at the head of the harbor and on the summit of the land over Gargamelle cove, and a post, with a ball at the top, on the same line between them.

Directions.—Having made the entrance of the harbor, steer for Querré islet, taking care to keep the cross on the south side of the harbor just open south of the cross on Querré islet. When the three beacons at the head of the harbor come in line, steer for them. This mark leads in the deepest water, $4\frac{1}{2}$ fathoms, that can be carried into the harbor. When Querré islet has been passed, keep a little nearer the south shore, and anchor at the head as convenient, in $4\frac{1}{2}$ to 5 fathoms water. To avoid the shoals on the north side of the harbor, Round head must not be brought open north of Savage island.

To pass south of Savage island, in 16 feet water, a round hillock marked by a bush must be brought in line with the south extreme of a rocky islet south of Querré islet, SW. $\frac{1}{2}$ S. This mark leads about a hundred yards south of Savage island.

Anchorage may be had 400 yards southwest of Savage island in $5\frac{1}{2}$ fathoms, with shelter from all but easterly winds, and temporary anchorage in the bay between Savage island and Barbacé point in about 11 fathoms, gravel.

Caution.—Steam vessels when coasting should be careful to avoid the nets that are usually set off Barbacé point.

St. John bay is comprised between Barbacé and Férolle points, and contains several groups of islands, the largest of which is St. John island, 5 miles from Barbacé point. On the east side of this bay are two remarkable mountains, called the High lands of St. John, flat and steep to seaward. The southern, $2\frac{1}{2}$ miles inland, is 1,610 feet high, and the northern three-quarters of a mile inland and 1,595 feet above high water.

Bustard cove is open to the north, situated 2 miles east of Savage island, and affords temporary anchorage in 11 fathoms, but the holding ground is not good. Shoals extend $\frac{1}{2}$ mile from Chasseurs point, east of this cove.

Green islet, surrounded by rocks and breakers, lies half a mile off Chasseurs point, leaving a narrow passage between.

Old Man cove is a shallow indentation 2 miles from Bustard cove.

Old Man shoal consists of a bank 400 yards in diameter, with two heads that uncover at low water, situated 800 yards from the shore. This is the only shoal off the shore of the bay till the head is reached, where temporary anchorage may be had; but the bottom is not good,

and heavy squalls sweep down from the High lands of St. John. A stream empties at the head through a white sandy beach.

St. John island is of moderate height, with a round summit, and wooded only at the north point.

St. John harbor, on the west side of the island, is a good anchorage for small vessels, and a little more than a mile long.

Marine Calves (Seal rocks), low and difficult to see at night, lie three-quarters of a mile southwest of the entrance, and are steep-to on the south side, but the north side is foul for 225 yards.

The two sides of the entrance to the harbor are nearly steep-to, but the south shore shoals immediately the entrance is passed.

The Fox is a rock, nearly awash, situated about 100 yards off the first point on the south shore within the entrance.

Clearing mark.—Nue point, just to the right of a woody eminence seen in the profile of the land at the head of the bay, leads north of Fox rock and just south of the shoals off English point, the first point in on the north shore. Nue point is east of Sesostriis bay, and is the second prominent point on the south shore.

There is no other danger in the harbor, and vessels can anchor in Sesostriis bay in 9 to 13 fathoms, sand and mud, or, if small craft, at the head in 5 fathoms, mud. Vessels of more than 100 feet in length should anchor in Sesostriis bay and haul into the Haven at the head and moor as convenient.

The holding ground is good in the Haven and there is good shelter, but the inhabitants report that in heavy westerly gales the swell rolls in. In Sesostriis bay the holding ground is good and the anchorage convenient for a short time, but a fresh west wind soon raises a sea.

Tides.—It is high water, full and change, in St. John harbor at 10h. 40m. Springs rise $7\frac{1}{2}$ feet, neaps $5\frac{1}{2}$ feet. The tidal streams are not felt in the harbor.

Square rock lies south of the harbor, about 300 yards off shore. It is steep-to on the north side, leaving a clear passage between it and the main, but shoal a short distance off the other sides.

Horn island is situated half a mile from Square rock, and is separated from St. John island by a channel 100 yards wide, with 13 feet in mid-channel.

Horn spit, with least water of 12 feet, extends ENE. 600 yards from the east extreme of Horn island and is steep-to.

Round head island, 750 yards from the south shore of St. John island, is so called from Round head, a conspicuous hummock 98 feet high, near the west extreme of the island. Round head cove is a shallow inlet immediately south of round head.

Round head shoal, with 7 feet water, extends S. 250 yards from the south point of this cove.

The south shore of the island is bold-to, and the north shore may be approached to a short distance, except at the northeast extreme.

Palaise shoal, with 13 feet water, lies 150 yards off the north extreme of the island, and has 5 fathoms close-to, north. Horn island, a little open north of the foot of Round head, leads clear of this shoal to the northward.

Good bay is a spacious anchorage between St. John and Round head islands. The water is rather deep but the holding ground is good, and there is a passage from east or west to it.

A shoal with $4\frac{1}{2}$ fathoms, lies WNW. $\frac{1}{4}$ of a mile from the west point of Round island, and is the only isolated danger in the harbor.

Well bay, on the north shore 1,200 yards W. by N. from Round head, affords good anchorage for small vessels in 7 to 8 fathoms, sand. From the north shore shoal water extends 200 yards. The well that gives the name to the bay is a curious excavation in the rock, 65 feet deep, near the path that goes from Well bay so St. John harbor.

Sheep island lies off the north shore near the east entrance. South and east of it a reef extends 400 yards, that is joined to Flat point, east of the entrance, by a shoal bank.

Barred bay is formed between Flat point and Sheep island. Small craft can go into it, but the holding ground is bad. To clear the shoals off Barred bay, the summit of Rich point peninsula must be kept shut in south of Round head. A vessel will be on the shoals when the entrance to Old Port au Choix is open.

Hare island, ENE. two-thirds of a mile from Round head island, is low and rugged, with shoals extending 400 yards from the west extreme.

Passage shoals lie between Round head and Hare islands 350 yards from the former, and consist of two heads, the western with 6 feet water, and the eastern 180 yards from it, with $3\frac{3}{4}$ fathoms. There is a deep passage on either side of these shoals.

Bayot shoal, with 7 feet least water, is a large flat a quarter of a mile from the northeast extreme of Hare island. Rich point, seen open, north of Round head, leads north of this shoal; and the summit of the north High land of St. John, in line with the middle of the western of the Turr islands, leads east of this shoal.

The northeast coast of St. John island is foul from Flat to Turret points, the latter so called from a circular mound near the extreme.

Wolf rock, at the northeast extreme of these shoals, is almost joined to Turret point by rocks and a bank, and is continued southeast by Wolf-

tail, a reef a quarter of a mile long. Numerous shoals, with $3\frac{1}{4}$ to 5 fathoms water, lies south of this at a mile distant from the shore. The easternmost of these has over it a depth of $2\frac{1}{2}$ fathoms, and lies NW. by N. from the north extreme of Hare island, distant three-quarters of a mile.

Clearing marks.—Round head island, open south of Flat point, leads south, and the ravine in the south High land of St. John, open east of Hare island, leads east of all these shoals.

Directions.—In proceeding to Good bay from the westward, Horn spit must be avoided, and Round head approached to a distance of 200 yards to clear the shoal with $4\frac{1}{2}$ fathoms water. Anchorage may then be had as convenient, but the best place is in 25 fathoms, mud, with Round head SSE., a little nearer the west than the east coast. From the eastward, keep the south extreme of Horn island in line with Flat point, to pass in mid-channel between Bayot shoal and those south of Wolf island, and when Bayot shoal is passed, keep in mid-channel between Flat point and Round head island, remembering the clearing marks for the shoals off Barred bay and Falaise shoal.

Turret bay runs in one-half of a mile west of Turret point, and is shallow, but affords good shelter for small fishing craft in $1\frac{1}{2}$ to 3 fathoms. Temporary anchorage may also be had off this bay in 12 fathoms.

Fossil shoal is a large bank with 6 feet least water, stretching along the line of the coast from the west point of Turret bay at a distance of a quarter of a mile nearly from the shore.

The north shore of St. John island is steep-to, except off a low point of rocks jutting towards Flat island.

The Men-hir, a remarkable rock, stands over the coast a little more than half a mile north of the entrance to St. John harbor.

Flat island, a little less than a mile from the north side of St. John island, is low, smooth, and wooded at the east end. Rocks and shoals extend off the south extreme, and fringe the southeast shore to the middle of the island at 600 yards distance. The north point is dangerous, and should not be approached nearer than 400 yards. Watch rock (Le Guetteur) is the southern of these dangers.

Flat island channel, between Flat and St. John islands, is clear south of these shoals and three-quarters of a mile wide.

Twin islands, N. by E. $2\frac{3}{4}$ miles from Flat island, are low, flat, and covered with grass. The northern makes as two islands from some directions, and is separated by a channel 100 yards wide with 6 feet water in it. The south extreme should not be approached nearer than 600 yards, nor the north point nearer than 300 yards, otherwise the water is deep about these islands.

Turr or Bird islands (Iles aux Godes) lie northeastward of Hare island, and are low and grassy. The western and highest is a mile from Hare island, and is joined to the eastern by shoal water.

The Calculus (le Calculo), a small rock half-way between Turr islands and the mainland, may be approached to a distance of 100 yards all round, and there are clear passages on each side of it.

A shoal with $4\frac{1}{2}$ fathoms water lies NW. by N. a little more than half a mile from St. John island north point, and shoals east of $7\frac{1}{2}$ to 9 fathoms have been frequently obtained in the channel between Twin islands and those to the eastward.

Caution should be used when navigating among these islands.

Whale islands are a little more than 5 miles E. by S. of Twin islands and consist of two large islands, low, flat, and grassy, and several islets and reefs south of them, among which boats find shelter in bad weather. The south and southwest sides of these islands should not be approached nearer than half a mile, to avoid shoals off the western, Dolman island, so called from a remarkable cliff 20 feet high at the east extreme.

A sunken rock lies WSW. $\frac{1}{4}$ W. a little more than a mile from Dolman island.

Freycinet shoal, with 7 feet water, lies three-quarters of a mile N. of the eastern Whale island, and is the summit of a bank 400 yards in diameter with deep water all around.

Round head, in line with the summit of the eastern Whale island, leads east of this shoal.

James island, ENE. $\frac{1}{2}$ E. $3\frac{1}{2}$ miles from the northern of the Twin islands, is about 20 feet high, covered with grass and clear on all sides. At the south extreme is a curious rock resembling a vessel under sail.

A rocky shoal, over which a depth of 4 fathoms was found, is situated SW. by W. from James island, distant $2\frac{1}{6}$ miles.

From this depth St. Margaret mountain appears in line with the western part of Fox island, and Godes island appears midway between North and South Summits (on the mainland).

Fox islands (les Jumelles de la terre), situated $1\frac{1}{2}$ miles N. by E. of Whale islands, consist of two flat islands, an islet off the channel between them, and Breton reef that uncovers SW. one mile from the group. The large islands are about 20 feet high, covered with grass. Vessels should not pass through the channels in this group, but the passages between Breton reef, Freycinet shoal, and James island are clear. Fishing boats and small schooners anchor in the space between the two large islands, but the holding ground is bad and sea heavy from the north.

Squid cove, south of Castor point, is shallow and open to the west.

From the north point of this cove a rocky shoal bank extends nearly 2 miles.

Castors harbor, north of Castor point, and $3\frac{1}{2}$ miles from Turr islands, is a harbor suitable only for small vessels, entered between Castor and Yellow points. Castor point is low, wooded, and bordered by rocks that extend three-quarters of a mile from the shore. Cloué shoal, with 3 feet water, is situated S. $\frac{1}{2}$ W. $2\frac{1}{2}$ miles from White island and $\frac{1}{2}$ of a mile from the north point of Squid cove. Testu bank, with 4 fathoms, lies W. a mile from Cloué shoal.

White island lies three-quarters of a mile off the mouth of Castors harbor, and is a good mark of recognition. A small rock lies 250 yards north, and shoals extend half a mile southeast of the island, but both island and rock are steep-to on the north and west sides. The harbor extends 2 miles to the eastward of Yellow point; the entrance is apparently three-quarters of a mile wide, but banks stretch off both shores, and they are fringed by shoals, making the entrance intricate and narrow.

Distinguishing mark.—Upon the summit of the larger White island there is a pile of stones surmounted by three dead trees.

Bar rocks.—The Bar rocks, lying nearly in the middle of the harbor, are not easily seen except at low water, at which time there is no difficulty in rounding the southwest extreme.

Directions.—From the southward: St. Margaret mountain, the first high land north of the harbor, should be brought in line with the east extreme of the bare part of Yellow point. This mark will lead 180 yards north of Testu bank, 400 yards north of the bank off Castor point, and 450 yards south of the shoals off White island. When a summit to the south of a wooded hill at the head comes in line with the east extreme of the high-water line of the Bar, E., that course must be steered till the beacons on Yellow point are in line. Keep the beacons in line astern NW. and round south of the bar, till the west summit of the south High land of St. John is in line with the right fall of a hummock at the foot of the north High land and east of a conspicuous square boulder on the south shore. This mark kept astern will lead to the anchorage in $3\frac{1}{2}$ fathoms about E. from the Bar.

If the beacons on Yellow point should be down, a remarkable notch in the High lands of St. John, east of the bare point of that hill, should be kept a little north of the square boulder on the south shore, SE.

A small vessel not drawing more than 13 feet water can anchor in the basin at the head by waiting for high water to go there; Caribou and Mosquito coves at the head are fit only for small schooners. Castor river, on the south shore, flows from a large pond a short distance inland.

Tide.—It is high water, full and change, in Castors harbor at 10h.

50m. As the tidal stream is strong both in the entrance and at the anchorage, it is better not to enter nor leave except at slack water.

John Meagher cove, north of Yellow point, is open to the west, and encumbered with shoals off both points and in the cove. Black islet, NNW. $\frac{1}{2}$ W. about 2 miles from White island, is low and surrounded by rocks that cover and shoals that extend NNW. three-quarters of a mile from the islet. There is passage for boats only between it and the shore

Maldignes cove is $3\frac{1}{2}$ miles wide between Black islet and Férolle point, and is filled with shoals, some of which are a mile from the shore, but may be cleared by keeping Férolle point east of N. by E.

Old Boy shoal, with $4\frac{1}{2}$ fathoms, lies SSW. $1\frac{1}{6}$ miles from Férolle point, and with $6\frac{1}{2}$ to 8 fathoms between it and the shoals off Maldignes cove.

Férolle peninsula, of moderate height and partly wooded, is 2 miles long from Férolle point at the west extreme to New Férolle point at the east, and is joined to the main by a narrow, low isthmus, over which the masts of the fishing vessels can be seen. The north shore is steep-to, but New Férolle point is foul 400 yards off.

Beacon.—A stone cairn about 20 feet high, surmounted by two dead trees, stands at a short distance within Férolle point.

Rocky bank, with $5\frac{1}{2}$ fathoms water, lies N. $1\frac{1}{2}$ miles from New Férolle point.

New Férolle cove runs in nearly a mile from the point and is exposed to the eastward, but much frequented.

A bank extends off the shores of this cove, and a shoal with 13 feet lies in the middle of the entrance.

Anchorage in 4 fathoms may be had SSE. $\frac{1}{2}$ E. from New Férolle point.

St. Margaret bay is entered between Black point, that separates it from New Férolle cove, and Dog peninsula, of moderate height, covered with brushwood, and faced by cliffs.

This bay is $3\frac{1}{2}$ miles deep, but the eastern portion is filled with islets and shoal banks, among which only very small craft can find shelter. The west side is fairly clear, and anchorage may be had in South cove though exposed to N. Care must be taken, however, to anchor in the small space with mud bottom in not less than 7 fathoms water, with the fall of the High lands of St. John open west of a large square stone at the head of South cove, and St. Margaret mountain in line with the west reef inside Rase island. Everywhere else the bottom consists of slippery rocks with long seaweed, over which the anchor slips continuously. A shoal with $3\frac{3}{4}$ fathoms lies 300 yards inside the anchorage.

Entrance shoal with 9 feet water lies 600 yards east of Black point and is steep-to. The west shore of the entrance is foul, and to reach the anchorage the extreme of Dog peninsula should be brought to bear N. and kept on that bearing astern.

Tides.—It is high water, full and change, in St. Margaret bay at 10h. 31m. Springs rise nearly $5\frac{1}{4}$ feet.

The coast from St. Margaret bay to Old Férolle harbor, a distance of $4\frac{1}{2}$ miles, is low and indented with several open coves, on the shores of which are some huts. This portion of the coast is difficult to distinguish from any distance, and should not be approached nearer than a quarter of a mile.

Woody hill, 151 feet high, is the highest part of the shore range, and is tolerably conspicuous in clear weather. It has a bare patch on the sea face that helps to distinguish it when seen against the high ranges of the background.

Brig bay is southeast of Grave point, the northeast extreme of Woody hill, which is shoal for a distance of 200 yards.

Entrance island, 900 yards NE. by N. of Grave point, forms the east side of the entrance to Brig bay and Old Férolle harbor, and is low, about 200 yards in diameter, and formed of gray flat stones. Rocks that cover and shoal water extend southwest $\frac{1}{4}$ of a mile; the northwest side is shoal for 200 yards, but the southeast is bold-to; a shingle spit, steep-to, extends from the southeast extreme.

A shoal with 15 feet water is situated NNE. 350 yards from Grave point, and there is less than 5 fathoms between it and Grave point.

A small gray cliff is situated on the mainland southeast of the entrance, of a lighter color than the surrounding rock. A bank stretches off the east shore 350 yards, but the west shore is nearly steep-to.

Directions.—The gray cliff must be kept E. $\frac{1}{2}$ S. to pass between the shoal of 15 feet and those off Entrance island; when the south extreme of Grave point bears S. by W. these shoals will be passed. Steer then for the west shore of Brig bay, and keep it 150 yards distant, until the first cove opens on the west shore, when anchorage may be obtained in $6\frac{1}{2}$ to 7 fathoms, mud, good holding ground.

Vessels bound north and wishing only temporary anchorage should go to this bay, which can be left easily with westerly winds.

Old Férolle island is separated from the north side of Entrance island by a channel 200 yards wide, with a small rock in the middle. Boats and small schooners can use this passage. The island is bare on the seaward face and covered with gray flat stones. The highest parts facing the sea are covered with dead trees, except a third of the west end that is grassy. The south shore of the island is steep-to.

A bank with several islets stretches nearly half a mile from the north-east extreme of Old Férolle island.

Fish island at the north extreme is bold-to on its north side and may be approached to 100 yards distant on the east side. A reef that covers, extends a short distance from the south extreme.

Old Férolle harbor is formed between the mainland and the islands off, and is entered by two channels, Southern pass, south of Entrance island, and Northern pass, east of Fish island, the latter practicable for small vessels only. Shoal water lies off the gray cliff and the south shore as far east as Debon peninsula, a low projection east of Entrance island. A stream empties three-quarters of a mile northeast of this. A bank stretches off a low point north of this stream, southwest 600 yards off which is a shoal with 3 feet water, nearly in mid-channel, with a passage on either side.

Directions.—Bring the gray cliff to bear E. $\frac{1}{2}$ S., and steer for it until Debon peninsula opens south of Entrance island bearing NE. by E., then round into the channel between Entrance island and the main, keeping near the north shore, and anchor N. by W. from Debon peninsula in 9 to 6 fathoms, or proceed farther east and anchor in 6 to 7 fathoms with the stream E. by N.

To proceed to the eastward by the north channel from the anchorage, the south shore of Old Férolle island must be kept close on board, and Entrance island just shut in before the stream bears E. This mark will lead in $3\frac{1}{2}$ fathoms at low water. When the south extreme of Fish island bears N. steer for it, and anchor as convenient in 7 fathoms, mud.

To enter by the northern pass, it would be better to mark the south end of the bank off Fish island by a buoy or boat. This bank should be passed at a distance of 40 yards, and when rounded, steer for a quarter of a mile towards the summit of Old Férolle island, when anchorage may be had in 7 fathoms, mud.

This entrance is difficult to distinguish, and care should be taken not to mistake another passage between the islands for it.

Tides.—It is high water, full and change, in Old Férolle harbor at 10h. 19m. The tidal streams follow the direction of the wind when it blows freshly, but flood runs ordinarily to the south and ebb to the north.

Seal cove, three-quarters of a mile northeast of Fish island, is open to the west and does not afford good anchorage. Seal point, north of this cove, has a reef extending from it 300 yards.

Cape Ste. Geneviève, three-quarters of a mile NE. by N. of Seal point, is low, covered with small trees, fringed by shoals, and should not be approached within half a mile.

Cape islet, a small islet, is nearly joined to the north side of the cape by shoal water.

Pond cove, east of this islet, is a mile deep, completely open to the north and filled with shoals. The east side of this cove is formed by Southwest point, low, wooded, and narrow.

Entry island lies close north of Southwest point, with shoal water between and passage only for small boats. It is composed of shingle with a little verdure at the summit, is low and difficult to recognize. Reefs stretch west of this island leaving only a passage 200 yards wide between them and the shoals off Gooseberry island.

Gooseberry island, a little more than half a mile N. from Entry island, is low and flat, covered with grass and with steep sides, and is nearly a mile long and 300 yards wide. The southwest portion is bordered by reefs that extend two-thirds of the distance to Entry island, near the extreme of which is Porpoise rock, that uncovers at half tide, and is 400 yards from Entry island.

Lobster island, with a small green mound on it, lies a short distance east of the east point of Gooseberry island, and continues southwest in shoals and rocks for a distance of 200 yards.

A bank, part of which uncovers at low water, lies between Lobster island and Porpoise rock, 600 yards north of Entry island.

Current island, about half a mile north of Gooseberry island, is larger than the latter, but about the same height; it is flat and covered with verdure, the outer coasts are fringed by bowlders, and have a depth of 6 fathoms 200 yards from the shore. Fisherman cove is a small indentation on the north side in which are some huts. Current island is separated from the mainland by North pass, a quarter of a mile wide, with 3 feet in it at low water.

Ste. Geneviève bay is formed by Entry, Gooseberry, and Current islands and the mainland, and is $1\frac{1}{4}$ miles deep at the south end, extends $1\frac{1}{2}$ miles south of Entry island and 3 miles to the northward. All the east coast of the bay is wooded, low, and without any distinctive feature; it is bordered by shoals, several of which are grouped off the southeast side of Entry island, leaving, however, sufficient space for a good anchorage for fishing craft between them and Entry island in $3\frac{1}{2}$ to 5 fathoms.

Great bank, three-quarters of a mile long, is situated NE. by E. $\frac{3}{4}$ E. 1,400 yards from Entry island, and $\frac{1}{2}$ mile from the east side of the bay. Several portions of this bank uncover at low water, but there is a clear passage between it and the main.

A shoal, with 10 feet water on it, lies half way between Great bank and Entry island.

Crab rocks, 200 yards north of Lobster island, cover at high water with the exception of three small heads. They are surrounded by a

shoal bank in all directions, and, with the shoals off Gooseberry and Current islands, nearly block the channel.

Sheep, Hen, and Ox islands stretch in a line south of the eastern end of Current island, separated from themselves and Current island by channels fit for boats only. From the southern, Ox island, a bank with 13 feet deepest water, stretches to the mainland, the channel being a third from the mainland, with a sharp turn in it to the northwestward immediately after taking the entrance.

Anchorage with perfect safety may be had east of the passage between Ox and Hen islands in 5 fathoms, mud.

A bank extends northeast of Sheep island, leaving only a narrow passage between it and the mainland, into which small craft may enter, till Current island north extreme bears NW. by N., by keeping close to the mainland.

Green rocks, situated SE. 600 yards from Lobster island, cover at high water and are bold-to on the south side. There is a depth of 19 feet in the channel between Green rocks and Lobster island.

Directions.—No stranger should enter this bay without a pilot. The channels are intricate and narrow, the passages lying between dangerous sunken rocks.

By South pass.—Entry island being distinguished, the north point must be brought to bear E. by N., and steered for on that bearing, until a small hill east of the bay is in line with an opening between the trees NE. by E. $\frac{1}{2}$ E., this mark kept on will lead, with not less than 18 feet, between the shoals off Entry island and Porpoise rock; or if Porpoise rock be seen, pass half way between the island and that rock. After passing Entry island haul to the southward, and anchor before the summit bears SW. by W. To proceed farther south the banks on both sides must be buoyed or a boat sent ahead, and the anchor let go off a stream on the south side, where there is a salmon fishery. To proceed to the northeastward, continuing on the leading mark past Entry island, a gap will open between the high-water lines of that island and Southwest point, then haul to north, and rounding east of Porpoise rock, steer for the middle of Gooseberry island, and keep the south shore of that island on board, to avoid the banks off Lobster island. Anchorage may be had on this course with the southwest point of Gooseberry island bearing SW.

To pass between Great bank and Lobster island, proceed on the leading mark until the south extreme of Ox island bears N. $\frac{1}{2}$ E., then haul up for it on that bearing and anchor as convenient.

By Middle pass in a vessel drawing not more than 13 feet. A buoy should be placed by the vessel before attempting to enter, in 13 feet

water on the southeast side of the 6 feet bank in the middle of the pass, which should be 350 yards from the north point of Gooseberry island. A second buoy should be placed in 13 feet water at the northeast extreme of the bank stretching off that island. Pass close south of the first buoy, and bring the second buoy in line with the summit of Lobster island, then steer for it, pass close east of the second buoy, and anchor in 5 to 6½ fathoms when inside it. To go farther southeast, continue on the same course past the second buoy, and when the fishing stage at the east point of Gooseberry island bears SW., alter course to pass 200 yards north of Lobster island. Then steer ESE. if wishing to anchor south of Ox island, or between that island and the main.

Tides.—It is high water, full and change, in St. Geneviève bay, at 10h. 43m. Springs rise 6½ feet, neaps 4 feet.

Black Duck cove is an open bight, with several fishermen's houses, a mile northeast of Current island.

St. Barbe point, nearly 2 miles NE. by E. of Current island, is bordered by a shingle beach and broken white stones. The coast is tolerably steep, low, and wooded, and should not be approached nearer than 400 yards.

Beacon.—A beacon marks St. Barbe point. The beacon has the form of a *pyramid*, is 10 feet high, built of stone, and stands upon a base of 20 feet. It is surmounted by a *tree with the roots upward*.

St. Barbe bay is 1½ miles wide between St. Barbe and Anchor points. All the east shore is fringed by dangerous shoals, the western of which, Winter flat, with 10 feet least water, is nearly 800 yards off shore. Outside the harbor the holding-ground is very foul and rocky.

St. Barbe harbor, at the south end of the bay, is entered between Harbor point on the west side and Stony point on the east. The water is deeper than 3 fathoms for a third of a mile east and south, beyond which it is shallow. Shoal water extends a short distance off both shores.

Beacons.—Stony point, one quarter of a mile east of Harbor point, is marked by two beacons, which in line bearing S. 66° E. lead into the harbor.

Landmarks.—The best landmark in making St. Barbe bay is a school-house erected near the end of Black Duck lake.

Seen from seaward, this building has the appearance of a monument; there is a flag-staff near it.

A fish-curing establishment stands on Harbor point, which is a conspicuous object from seaward.

To enter, bring the beacons on Stony point in line to pass between Winter flat and the shoal water off the west shore, in not less than 6

fathoms; when the house in Traitant cove (the first bend on the west side of the harbor), not seen till well up to Harbor point, comes open off the beacon on Harbor point, steer mid-channel into the harbor and anchor in $4\frac{1}{2}$ fathoms, mud, good holding ground, with the wharf in Traitant cove SW. and the beacon on Harbor point by NW. $\frac{1}{2}$ W. The settlers report that the bay breaks right across after heavy westerly gales.

Tides.—It is high water, full and change, in St. Barbe harbor at 10h.

Winter cove, in the east corner of St. Barbe bay, is completely open to the westward, and the entrance is partially obstructed by reefs stretching from the south point.

Ice point, low and narrow, with shoals off the extreme, lies half way between Winter and Anchor coves.

Anchor point is low and continued by a ledge extending a quarter of a mile. The beacons on Stony point in line lead well clear of this ledge.

Anchor cove is situated immediately south of the point and is open to southwest. A few schooners can moor head and stern and lie in safety as the heavy sea breaks on the entrance points, and only the swell runs up the cove. The houses at the head of this cove are very conspicuous.

The coast to the northeastward of Anchor point is low and shoal, and should not be approached nearer than half a mile.

Deadman cove, $1\frac{1}{2}$ miles from Anchor point, contains some houses, and is marked by a conspicuous black cliff on the north point.

Bear cove, three-quarters of a mile northeastward, also contains some houses.

Seal islands, 4 miles from Anchor point, are a group of four islands and some rocks, separated from the main by a narrow channel fit for boats. The outer island is of white rock, and the inner and largest covered with grass, with several houses near the summit. There is a passage with 13 feet water between these two, but the bottom is composed of large bowlders that may change their position after a heavy gale.

Seal ledges lie north 300 yards from Seal islands and are steep-to.

Flower cove, east of Seal islands, is much frequented by fishing craft, and affords good anchorage to vessels drawing less than 16 feet and of moderate length. It is nearly a mile long, a quarter of a mile wide at the entrance, and narrows to the head. A low peninsula stretches off the south shore, and a rocky islet lies in the middle of the entrance, with shoal water between it and the north shore.

Directions.—Seal islands should be rounded at a distance of at least a quarter of a mile to clear Seal ledges, and when the rocky islet bears E. $\frac{1}{4}$ N. it may be steered for and passed in mid-channel between the islet and the south point.

Anchorage may be had east of the islet in $3\frac{1}{4}$ fathoms, or by keeping farther east in mid-channel, in the same depth inside the peninsula on the south shore.

Tides.—It is high water, full and change, at Flower cove at 10h. 6m.

Capstan point, north of this cove, is low, fringed by a stony beach, and continued by shoals a quarter of a mile.

Nameless cove, northeast of Capstan point, is fit only for vessels drawing less than 9 feet. It is nearly filled by islands and shoals. Flower island is the western and largest, surmounted by a house. Herb island, the next highest, is E. by S. of it, and north of the passage between these two is Slab island, the lowest.

Directions.—Bring the eastern fishing stage at the head a little open north of Herb island, and pass between that and Slab island at a third of the distance across from Herb island, and when the western fishing stage bears N. $\frac{1}{4}$ W. steer for it and anchor in $3\frac{1}{4}$ fathoms, with the north extreme of Slab island W. $\frac{1}{4}$ S. Care must be taken to avoid a bank northeast of Herb island. There is another small space for anchorage, reached by passing east of the bank northeast of Herb island, in 13 feet water.

Small craft enter this cove by passing between Herb island and the south shore.

The anchorage southwest of Flower island off the entrance of Nameless cove is bad, except during a calm.

Flower ledges, parts of which uncover at low water, extend three-quarters of a mile NW. of Flower island. To pass west of Flower ledges keep the houses in Bear cove open west of Seal islands.

Grenville ledges, with 2 feet water, are situated two-thirds of a mile northeast of Flower ledges, and are 600 yards from the coast.

Mistaken cove, northeast of Nameless cove, is nearly dry at low water; the surrounding coast is low and covered with vegetation.

Savage cove, $1\frac{1}{4}$ miles from Mistaken cove, affords good anchorage to small vessels in 13 feet water and is easy of access.

The passage in is north of Cooper island, that is nearly joined to the south shore, and on which are the fishing establishments. Strong north winds produce a heavy swell in the cove.

Tides.—From Anchor point to Belle isle strait the tidal streams along the coast sometimes attain a velocity of 2 knots an hour, and assist in

making navigation dangerous. When not influenced by a strong breeze the flood runs SW. and the ebb NE.

The coast from Anchor point to cape Norman is low, without any remarkable feature.

Sandy bay, a little more than a mile northeast of Savage cove, is quite open. Small vessels can find temporary anchorage in $4\frac{1}{2}$ fathoms, with shelter from E. to SW. through south.

Double ledge, with 8 feet water, lies a little more than half a mile off the shore $1\frac{1}{2}$ miles from Sandy bay.

Green island, situated three-quarters of a mile off-shore $4\frac{1}{2}$ miles northeast of Sandy bay, is narrow, low, and covered with grass at the summit, and can be seen 10 miles in clear weather.

A reef stretches off the east end of the island two-thirds of a mile and breaks with any sea. The east extreme of the reef is within half a mile of the Newfoundland shore, and the latter must be kept on board to pass inside the island.

Anchorage may be had in 8 to 9 fathoms between Green island and Newfoundland, with fair shelter from all winds, but those from east and west produce a tolerably high sea.

Straight coast begins at the west point 4 miles from Green island and runs in nearly a straight line 20 miles to Boat peninsula. It is fringed by gray rocky cliff, steep to. There is a small creek for boats $11\frac{1}{2}$ miles from Green island, and another about a mile farther east. The coast is barren throughout.

Boat peninsula projects about a third of a mile. Boat stern, the west point, is steep and forms the east point of Open bay, off the west point of which shoal water extends some distance. Boat head, the east extreme of the peninsula, is surrounded by a dangerous reef extending some distance from the shore. Boat cove, east of Boat peninsula, is open to the northeastward. Small vessels can anchor there with off-shore winds.

Cape Norman is a point of bare rock with low cliffs, steep to on west and north sides, but southeast from it the coast becomes foul.

Light.—From a white hexagonal tower a *revolving* light is exhibited at an elevation of 138 feet, attaining its greatest brilliancy *every two minutes* and visible 20 miles in clear weather.

Cape Norman bay is 2 miles wide between cape Norman and Cook point, is entirely open to the northeastward, and affords no anchorage.

Cook point is a low tongue of land, off which Cook rocks and other dangers extend three-quarters of a mile nearly.

Priest rock, with 13 feet water, is the western of these shoals NNW. $\frac{5}{8}$ of a mile from Cook point.

Norman rock, with 16 feet, is the eastern, and is situated NE. by N. $\frac{5}{8}$ of a mile from Cook point.

To pass between these two shoals, keep Whale cave (Le Trou de la Baleine) under Burnt cape, between Black rock and islet south of Cook point.

Cook harbor is formed south of Cook point by a group of islands lying parallel to it.

Schooner island, the largest, is nearly a mile long and steep-to on the north side.

Green island is nearly joined to the east end of Schooner island. Black islet at the east extreme of the group is close to Green island. Black rock lies close north of it.

These islands may be approached to a distance of 200 yards on the east side. Boats only can go between these islands.

Prosper islet is situated half way between Schooner island and the north shore. There is a rocky bank between it and the shore, and a shoal extends 300 yards NE. from it.

Fauvette island, west of Schooner island, and half way between it and the north shore, is surmounted by a small grassy hill, and from it a reef extends 400 yards, northwest of which are shoals.

Snow cove is a small indentation north of Fauvette island, with a fishing establishment on the shores.

Directions.—The entrance of the harbor is easily distinguished from the westward, but from the eastward the uniform height of the land renders recognition difficult; the summit of cape Dégrat, kept between cape Onion and the Mewstone, will lead to the entrance. Enter the harbor on the south shore, keeping more than 300 yards from Green island and 200 yards from Schooner island. Round close west of Prosper islet, and steer for the east point of Snow cove to clear the shoals off Fauvette island.

Anchorage may be had in 4 to 5 fathoms, sand and mud, off Snow cove.

Tides.—It is high water, full and change, at Cook harbor at 7h. 25m.

Pistolet bay is entered between Black islet and Burnt cape, a width of 3 miles, is 6 miles deep and 5 miles wide at the head. Shallow bay, on the west side of Pistolet bay, is formed by the main and Wood islands, a group extending south from Schooner island. There is anchorage in 4 fathoms just west of Wood island, but the bottom is sprinkled with bowlders, the holding ground is bad, and sea from the eastward reaches the anchorage.

All the south-west part of Pistolet bay being exposed to north-east affords only temporary anchorage, and the shores at the head are shallow half a mile from the shore.

Burnt cape, the east point of the entrance of Pistolet bay, is the extreme of a high barren peninsula of a whitish color 223 feet high. On the west face is a deep hole called Whale cave (Le Trou de le Baleine), conspicuous from westward.

Triangle point, low and wooded, stretches three-quarters of a mile from the south shore of the bay, and is continued by banks that leave a passage a mile wide between them and Dog bank.

Dog rock nearly covers at highwater, and is the summit of a bank extending nearly $1\frac{1}{2}$ miles from the southwest extreme of Burnt cape peninsula; Dog rock is nearly in the center of the bank.

Milan arm is at the south end of Pistolet bay, and extends $4\frac{1}{2}$ miles to the southeastward. On the north side of the entrance is Trompe l'œil point, composed of low rocks and boulders, running parallel to the south shore of the bay, and continued by shoals for some distance.

Parker river empties just west of the entrance to Milan arm. A group of huts marks the entrance to the river and the south point of Milan arm. A salmon fishery is carried on here by some Indians.

Mic-mac islet lies in the entrance to Milan arm, and is small and grassy.

Directions.—To find anchorage in Pistolet bay available for vessels of moderate draught only: Steer up the bay with Triangle point bearing S. by W. $\frac{3}{4}$ W. or nearly parallel to the west side of Burnt cape. Dog rock will soon be seen if carefully looked for, and the huts at the entrance to Parker river. On this course, when the huts bear SE. $\frac{1}{4}$ E. steer SE. $\frac{1}{2}$ S for the gap in the hills south of the huts, to pass between Dog rock and Triangle point banks. Round Dog rock at three-quarters of a mile, when a fair anchorage will be found in $4\frac{1}{2}$ fathoms, stones and gravel, or proceed farther SE. to bring the rock to bear NW. by W. $\frac{1}{2}$ W. and anchor in 5 fathoms, small stones.

A small vessel may proceed to the best anchorage in the bay, off Parker river.

A vessel drawing less than 16 feet water can enter Milan arm by passing north of Mic-mac islet, steering SE. $\frac{1}{2}$ E. to avoid the banks north of that islet, and passing a third of the distance from the islet to Milan point. When the islet bears SW. $\frac{1}{4}$ S. turn sharply to S. $\frac{1}{2}$ E. to avoid the shoals with 12 feet water that stretch off Milan point. When east of Mic-mac islet anchor as convenient in the middle of the arm, but the cove east of Milan point must not be entered.

This last anchorage should not be taken without a pilot. Vessels

may also proceed to the head of the arm with a pilot, where anchorage may be had in 2 to 3 fathoms, mud.

Tides.—It is high water, full and change, in Pistolet bay at 7h. 39m. Springs rise $3\frac{1}{2}$ feet.

Ha-ha bay, southeast of Burnt cape, is $1\frac{1}{2}$ miles wide and a little more than 3 miles deep. Peak point is the extreme of a flat hummocky peninsula extending from the south shore, fringed by rocks, steep-to on the north side, and narrowing the entrance of the harbor to 900 yards. South of the peninsula the bay is filled with shoals, so that vessels cannot get shelter behind Peak point. The isthmus separating Ha-ha bay from Pistolet bay is low and 700 yards wide. The north point of Peak point peninsula should not be approached close-to, or the shore off the isthmus.

The coast from Ha-ha bay to cape Onion, $3\frac{1}{2}$ miles, is cliffy and steep, with some small coves that afford no shelter except for boats with off-shore winds.

Cape Onion is 259 feet high and easy to recognize by the Mewstone (Gros-oignon) close off the northeast extreme. The cape is the extreme of a peninsula, the north face composed of black cliff, and the isthmus $\frac{1}{4}$ of a mile wide between Savage cove and Sacred bay. On the ledge, extending from cape Onion to the Mewstone, are two other cliffy hummocks. These rocks form the north shore of Onion cove, on the south part of which are some fishing establishments. The south shore of the cove is fouled and it is exposed to the northeastward.

Onion island (*île à Bourge*), composed of flat rocks, on which are a round hillock and a remarkable square rock, is south of the cove. The south side is bold-to, and the east side may be approached to a distance of 200 yards.

Sacred bay, entered between capes Onion and Artimon, is 3 miles in width, and nearly 3 miles deep. Numerous islets and shoals encumber the west side of the bay, and form West and South roads, the only safe anchorages.

Low islets, nearly half a mile southwest of Onion island, are connected by reefs to the north shore, but steep-to on the south side.

Little harbor is situated west of Low islets, between them and a peninsula, half a mile farther west, that terminates to the westward in Fauvette point, long and narrow, steep-to on the south side, with two fishing stages projecting from it. The harbor is only a small curve in the coast, and the sea from the east fetches home, but good anchorage may be had in 5 fathoms, sand and mud, with onion island showing between Low islets and the main.

Mauvais gars is a small rock, a quarter of a mile east of Fauvette

point, that covers at high water, and from which a reef extends 100 yards to the southwestward. There is a clear passage between this rock and the main.

Bon gars and Petit gars are connected nearly to Fauvette point. Bon gars, the southern, is always above water, and steep to on the south and west sides. It is situated 400 yards from Fauvette point.

Moyacs islands are a group at the east extreme of the shoals on the southwest shore of the bay.

A shoal with 16 feet water lies N. by E. $\frac{1}{2}$ E. 350 yards from the northern of Moyacs islands, and is steep to on its outer sides.

Hostis island W. $\frac{1}{2}$ S. 650 yards from Moyacs islands is low, and may be approached as close as 200 yards on the north side.

A bank extends northeast a quarter of a mile from Hostis island, with 16 feet at the east extreme, and 6 feet at 200 yards from the island.

West road is a semicircular basin southwest of Fauvette point half a mile deep, but shoal water extends a quarter of a mile from the shore. Care must be taken to anchor near the mouth, where good anchorage may be had in $4\frac{1}{2}$ fathoms, with the square rock on Onion island just touching the south extreme of Fauvette point.

Directions.—Bring Onion island just open south of Low islets, and run on that mark between Mauvais gars and the bank off Hostis island, until Bons gars bears W. $\frac{1}{2}$ S., when it may be rounded at 200 yards distant and anchorage obtained.

Curlew point, 700 yards east of Moyacs island, is the southeast point of the entrance to South road. It is a peninsula with a flat summit, and may be approached as close as 150 yards on the west side. A series of islands extends from this point to cape Artimon; among the most conspicuous are Twin islands, two large cliffs joined together by low rocks and close to Curlew point, Naufrage island half a mile from Twin islands with a reef extending NW. 300 yards, and an islet off Beak point.

South road may be entered between Curlew point and Moyacs islands, steering for Green island west of Curlew point, and when the square rock on Onion island is seen just north of the southern Moyacs island, keep that mark astern, and it will lead to the South road, passing close north of a rock that covers off the south shore. When that rock is passed, haul to the southward and anchor in 5 fathoms, sand and mud.

The basin at the head is shoal for 1,600 yards from the east shore and 1,400 yards from the west, limiting the anchorage space to 600 yards in diameter.

Tides.—It is high water, full and change, in South road at 7h. 23m.

The coast between Curlew point and cape Artimon is low and shallow, affording neither anchorage nor shelter from north winds.

Cape Artimon, the north point of an island 400 yards from the main, is clifty and easy to recognize. Shoals extend 250 yards northwest and a group of islets and shoals northeast $1\frac{1}{2}$ miles nearly.

Sacred islands off Sacred bay are easy of recognition, and have clear passages between themselves and the main.

Great island is nearly a mile long, steep to all round, covered with grass, and the highest point at the top of the cliff forming the north side of the island is 269 feet above high water. It lies a little more than $1\frac{1}{2}$ miles northeastward of the Mewstone.

Maudit bank, with 7 fathoms water, breaks in bad weather, and lies 2 miles N. by E. $\frac{1}{4}$ E. from Great island.

Little island, nearly a mile SE. $\frac{1}{4}$ S. of Great island, and $\frac{5}{8}$ of a mile from cape Artimon, is lower than Great island, and steep to except off the south extreme, which should not be approached nearer than 200 yards.

Verte island, half a mile NE. $\frac{1}{4}$ E. of cape Artimon, is low, grassy, and surrounded by reefs, leaving a passage 300 yards wide between them and the shoals off cape Artimon.

To pass between them in 4 fathoms, Green island should be kept nearer than cape Artimon, and after Green is passed, cape Ardoise should be steered for and passed 300 yards distant.

Le Grand Mulou (Northwest ledge) is the east extreme of the ledges off cape Artimon, and is the summit of a bank with 6 feet least water 300 yards in diameter, leaving a passage with $3\frac{1}{2}$ fathoms water, 400 yards wide, between it and the reefs off Green island.

Clearing marks.—The Mewstone, touching the south extreme of Little Sacred island, leads north, and the summit of Great Sacred island, in line with the north extreme of Little Sacred island, leads east of this shoal. The west point of Great island, seen just open west of the west point of Little island, clears west of this shoal.

Maria reefs, a third of a mile from Green island and half a mile northeast of cape Ardoise, are a group of black islets, some of which are 7 feet above high water. Two shoals, with 16 feet water on each of them, are situated between Maria reefs and those off Green island, leaving a passage with $3\frac{1}{2}$ fathoms water close west of Maria reefs, that are tolerably steep to on the south and west sides.

Médée bay lies southeast of cape Artimon and is obstructed by shoals and islets. At the head are some fishing stages. Cape Ardoise,

east of the bay, is a remarkable round gray hill, 184 feet above high water.

Maria bay, south of cape Ardoise, is open to the eastward and affords no shelter. Cape Raven, the southeast point of the bay, is steep, and a little west is a high cliffy point called Black head.

A rock, with 6 feet water, lies nearly in the middle of the entrance to Maria bay, ESE. 800 yards from cape Ardoise.

From it Foirou island is seen in line with the middle of Maria reefs

Mauve bay (Noddy harbor) is three-quarters of a mile wide between cape Raven and Noddy point, the latter formed of a steep hillock, terminating in a double tier of low flat rocks, steep-to. The bay is $1\frac{1}{2}$ miles deep; both sides are high and tolerably steep at the entrance.

Garden cove is situated half-way up the bay on the west shore and is 300 yards deep, with shoal water 100 yards off shore. Anchorage may be had by small vessels in 16 feet, sand, fair holding ground, but easterly swell sometimes reaches in. An islet lies on the east coast of Mauve bay opposite Garden cove. The deep water runs in a narrow gully to the head, where anchorage for a few small vessels may be obtained in $3\frac{1}{2}$ fathoms, good holding ground. Westerly winds are violent, but the anchorage is safe, and the sea from north does not reach in. The rest of the bay affords no shelter from the sea.

Wood bay, southeast of Noddy point, between it and Jacques Cartier island, is exposed to the north and affords no shelter.

Jacques Cartier island is separated at the southwest extreme from the mainland by a channel passable for boats, 50 yards wide. The north and east points are steep-to, a bank of rocks lies southeastward of the east point extending 90 yards from the shore, and the island may be approached to that distance along the south side. There are several fishing establishments on the island, with their stages on the south side.

A bank, with $3\frac{1}{2}$ fathoms, lies 200 yards off the point on which the second and third fishing stages from the east are situated.

Green (Vincent) islet, 16 feet high and covered with grass, is situated east 200 yards off the mainland point south of Jacques Cartier island, leaving a tortuous passage between with 15 feet water.

Shoals extend east 190 yards, but the other sides may be approached as close as 100 yards by small vessels.

A rock with 12 feet water lies northeast 200 yards from the islet.

Kirpon island forms the north extreme of Newfoundland, is $3\frac{1}{2}$ miles long and $1\frac{1}{2}$ miles wide, and separated by a channel 100 yards wide from the mainland. It is high and bold, the summit over cape Dégrat being 505 feet high.

Cape Bauld, the north extreme, is bold-to, and from it the coast trends southwesterly $2\frac{1}{4}$ miles to Dumenil point, and then southerly to form Kirpon harbor.

The islets are a group of low rocks, continued to the southwest by a reef that leaves a clear passage only 200 yards wide between it and Jacques Cartier island. A fishing establishment is situated on Kirpon island, southeast of these islets.

Merchant island is a low projection with a fishing establishment, close to Kirpon island, 600 yards SE. by S. of the islets.

Morne Fontan, a conspicuous hill 105 feet high, surmounted by a white staff with a black ball at the top, is situated half a mile SSE. of Merchant island.

Kirpon harbor is situated between Jacques Cartier and Kirpon islands and affords excellent anchorage for any vessel.

Beacons.—A beacon is placed on the west side of Merchant islet, and another near the summit of a hill 118 feet high, situated above La Reine cove, about 390 yards S. $71^{\circ} 30'$ E. from the first beacon. There are also three beacons on the flank of the hill which borders the SW. side of the road.

To enter bring the beacon on Merchant islet and the one on the hill 390 yards S. $71^{\circ} 30'$ E. in line, passing between the north point of Jacques Cartier island and the reef which prolongs to the SW. the rocky islands to the southward of Dumenil point; when a chapel on the mainland SSW. from Jacques Cartier island is on a line tangent to a large rock lying to NW. of the island it indicates the western limit of the reef has been reached; and when the chapel is seen open to the left of the Observatory point, the shoals bordering the NE. point of Jacques Cartier have been passed. The three beacons and a whitewashed rock on the flank of the hill SW. of the road in line lead to the anchorage westward of Green islet.

Anchorage is found in 7 to 9 fathoms, mud as convenient anywhere after rounding the east point of Jacques Cartier island.

Large vessels drawing more than 16 feet cannot go farther south than Green islet, but small vessels may find good anchorage south of that islet, by keeping the fishing stage east of the islets just open north of Merchant island.

Peaked rock covers at high water and lies 100 yards northwest of the mainland point forming the channel south of Kirpon harbor.

Canias rock lies 250 yards off Kirpon island, between the last two fishing stages on the west side of that island, and is always visible. Vessels drawing 13 feet water can pass south of Kirpon island.

Directions.—Bring a remarkable cascade on the south shore of Little Kirpon harbor in line with the south point of Kirpon island. This mark kept on will lead in 16 feet water north of Green point. When that point is abeam sheer to starboard and steer for the first fishing stage on the west side to avoid the Butter pot, a rock in mid-channel that shows only at low water, pass 25 yards off that stage and the shore to the next point, then turn sharply to port, when anchorage may be had or the vessel may proceed to the eastward. Or the mark may be kept on and the south point of Kirpon rounded close to. Great care should be taken of the strength and direction of the tide in this channel.

Tides.—It is high water, full and change, in Kirpon harbor, at 7h. 4m. Springs rise 5 feet, neaps 1½ feet. The streams often attain a velocity of 3 knots an hour in the passage between Kirpon and Little Kirpon harbors, but the direction depends more on the winds prevailing, or that have prevailed, than on flood or ebb.

The tidal streams are irregular between Cape Onion and Kirpon island, but the flood runs ordinarily to the west and ebb to the east. If the tide is with the wind, it attains the velocity of a knot an hour.

Foirou island (Gull rock), W. $\frac{1}{2}$ S. $2\frac{1}{2}$ miles from Cape Bauld, is a low round rock 100 yards in diameter, from which a shoal extends southeast 350 yards, that may be cleared by keeping the southern summit of Great Sacred island in line with the north point of Little Sacred island.

CHAPTER VI.

NEWFOUNDLAND, EAST COAST.—CAPE BAULD TO CAPE ST. JOHN.

Cape Bauld, the northern extremity of Newfoundland, is the north point of Kirpon island, and the southeast point of the entrance to Belle-Isle strait. It is a rocky, barren point, steep-to, around which are strong variable eddy tides.

Light.—August 15, 1884, an *alternating red and white* catoptric light, attaining its greatest brilliancy every 45 seconds, elevated 141 feet above high water and visible 18 miles from seaward, will be exhibited from a square *white* wooden tower, 60 feet above the ground, with keeper's dwelling attached, erected on high ground near the northernmost extremity of Cape Bauld.

The light is intended for a sea light as well as to indicate the entrance to the straits of Belle Isle.

A fog-horn, operated by compressed air, and located about 150 feet from the light-house, will be put in operation as early in the season as possible. It will give blasts of 10 seconds' duration with an interval of 50 seconds between blasts.

Position: Latitude, $51^{\circ} 38' 50''$ N.; longitude, $55^{\circ} 25'$ W.

Grande cove, east of the cape, is exposed to easterly winds; the south point is an island joined by bowlders to the mainland, that with a rugged point south of it forms Colombier cove, a temporary shelter for fishing boats.

The coast between this and Cape Dégrat forms a bay 1,200 yards deep, divided into numerous coves by islands and points, off which are dangerous shoals, and for general navigation vessels should not enter west of the line joining the points of this bay.

Pigeon cove, the northernmost, is small, and can shelter only one vessel. Dégrat and Sheep islands are immediately south of this, the former joined to the mainland at low water, continued to the northeast by reefs for nearly half a mile.

Sheep bank, with 6 feet water, lies ENE. 350 yards from the high-water line of Sheep island.

Dégrat harbor is a small cove where six fishing vessels can be moored in 13 feet water inside a flat rock on the east side. Sheep channel (Passe aux Moutons), between Sheep and Dégrat islands, is the best passage to this harbor, and after passing Sheep bank, which

may be avoided by keeping the north side of Sheep island close on board; the channel is clear, though narrow.

Dégradat channel lies between Sheep island and Cape Dégradat, and is entered by passing close south of an inlet joined to Sheep island by a chain of rocks, then steer a little west of the summit of Dégradat island, to avoid a shoal with 2 feet water off the south shore, and when Sheep channel is open the harbor may be steered for, taking care to avoid the flat rock off the east side.

Cape Dégradat is surmounted by a hill 505 feet above high water, the highest on this part of the coast, faced by a steep cliff 300 feet high, with deep water close alongside. The cliffs fall at the south end to White point, a landslip in the cliffs, of a lighter color than the rest of the coast.

Grands Galets bay is situated south of the cape, but affords no shelter.

Little Kirpon harbor lies off the south point of Kirpon island. It is entered between the island and the main. Whale point (pointe de la Baleine), on the north side, is a low ledge of rocks off the island, and Partridge point, on the south, is much indented by creeks with cliff sides. The harbor is entered between Herbert point, a low peninsula, and Fidèle point, surmounted by a round hill. The island shore is steep-to, but a shoal stretches northeast 150 yards from Fidèle point. The harbor is $\frac{1}{4}$ of a mile long from Herbert point to the entrance of Noble cove, which is shallow and 250 yards broad, but the holding ground is bad.

Vessels drawing less than 13 feet water may pass south of Kirpon island to Jacques Cartier road, but as the tides are strong, great care must be taken to avoid Butter-pot rock, that lies nearly in the middle of the north bend, and is nearly always covered.

White islands are east $2\frac{1}{2}$ miles from Partridge point, and consist of three principal and some lower rocks. The highest is the westernmost, about half a mile long. A shoal lies 150 yards off the north extreme. The smallest is to the north, and is formed of rugged masses of rock. There is a clear passage between this and the largest, keeping nearer the easternmost, and the whole may be approached to a distance of 200 yards all round.

White rocks (les Donzelles), W. by S. three-quarters of a mile from White islands, are a low group of islets separated by a channel $1\frac{1}{2}$ miles wide from the main. Sunken rocks lie off the north end.

A rock, that always breaks, lies SE. by E. 850 yards from the south end of these rocks, and from it another rock, with a shoal stretching north from it, lies NW. 200 yards distant.

The coast from Partridge point to Griguet harbor is split up into rugged coves, the hills being about 120 feet high, over the coast.

Madeleine shoal, with 2 feet water, is in the first cove south of Partridge point, 150 yards off shore. To pass east of it, keep the east point of Kirpon island in sight east of Partridge point.

Green shoal, with 10 feet water, lies SSE. 190 yards from Breaker point, a low point sheltering two small coves half way between Partridge point and Griguët harbor.

Storm cape (pointe de la Tempête) is a rocky islet close to the shore, two-thirds of a mile northeast of the entrance to Griguët harbor, the intermediate coast being steep-to.

Griguët harbor and several other small anchorages are comprised between Broize point and White cape S. $\frac{1}{2}$ W. a little more than 2 miles, and are formed by a group of islands lying close to the mainland.

Camel island, the largest, 305 feet high, is the northernmost and forms the south side of the entrance to North and Northwest bays, and takes its name from a remarkable mound at the east end that forms the summit. The north point is shoal for 200 yards. Several shoals lie off the northeast point, the outer with $5\frac{1}{2}$ fathoms water lying NNE. $\frac{1}{2}$ E. 300 yards. Prune island lies north of Camel island. It is small, 16 feet high, and steep-to, except off the south end.

A shoal, with 16 feet water, lies between Prune island and the north point of Camel island, a little nearer the latter.

Broize point is bold-to, and forms the east side of North bay.

Baleine rock is always uncovered, and may be approached to a distance of 100 yards.

Cove point divides North bay from Good cove (Belle anse) and is steep-to.

Anchorage may be had in North bay in 15 to 16 fathoms, off the fishery establishment, with tolerably good holding ground. SE. winds occasionally send in a swell.

Good cove, 400 yards wide and deep, affords good anchorage for small vessels in 11 fathoms, sand.

Bay point divides Good cove from Northwest bay. A rock lies 70 yards east of it, and La Rose, a rock with 2 feet water, is the extreme of a shoal extending from it S. 100 yards.

Northwest or Roncière bay runs in a northerly direction one mile from Bay point, with a mean width of about 600 yards. At 300 yards within Bay point is Crab island, close to the east shore, that may be approached as close as 100 yards. At the head the bay runs to the eastward for half a mile, but is shallow for half that distance. A dangerous spit extends from the head of the bay about 600 yards. To pass east of it, keep Bay point shut in with Crab island.

Anchorage may be had in this bay in 18 to 10 fathoms as convenient, but vessels approaching the head should anchor east of the line joining Bay point and Crab island.

Southwest bay, fit for small vessels only, lies between Camel island and the main, and is entered only from the north through the narrow channel between them; mid-channel should be kept till the bay begins to open, when the west shore should be kept close-to, to avoid a shoal off Camel island; when the bay is entered anchorage may be had as convenient in 8 fathoms. Temporary anchorage may be had at the north entrance to this bay, off the northwest shore of Camel island, in 9 fathoms, taking care to avoid the shoal off the north point of that island.

Directions.—For a small vessel the channel is clear, but a large vessel should pass within 200 yards of Broize point, steering for Baleine rock, and when Bay point is in line with Cove point, steer in mid-channel between Cove point and Prune island, turning to southwest when the latter is passed to avoid La Rose rock, and when Crab island is seen open of Bay point, Northwest bay may be entered.

Griguet island, separated by a channel 100 yards wide from the southeast side of Camel island, is small, and about 66 feet high. Off the northeast extreme is Black islet, 30 feet high, with a small spit off the southwest extreme. The other sides are steep-to.

Four-ears island lies south of Griguet island, is faced by a peaked black cliff 120 feet high, and may be approached within 200 yards on the south side.

Griguet harbor proper is situated in the space comprised between Camel, Griguet, and Four-ears islands. It is only 400 yards long and 200 yards wide, and the entrances are narrow and tortuous. The passage between Four-ears and Griguet islands is so full of shoals that it should not be attempted without a pilot. Between Griguet and Camel islands the passage narrows at the south end to 90 yards, but may be entered by small vessels by keeping the shore of Griguet island close on board for 400 yards from the east point, and then mid-channel to the harbor.

White cape harbor is a space 600 yards long and 200 yards broad, between the west end of Four-ears island and White cape land. There is no danger in the channel between the islets off the south end of Four-ears island and those off the north side of White cape. Boats only can take the passage west of Four-ears island. Anchorage may be had in 7 fathoms near the mainland shore, to avoid a bank extending 250 yards from Four-ears island.

Tides.—It is high water, full and change, in these harbors at 7h. 10m. Springs rise 5 feet, and neaps 2½ feet.

White cape is a good mark for distinguishing this locality, and is a rugged white cliff, surmounted by a grass-covered summit, 262 feet

above high water. The cape is steep-to as well as the outer coast to White Dog point, the north point of St. Lunare bay. Between these two points are two coves fit for boats only.

St. Lunaire bay, one of the finest harbors in Newfoundland, is accessible to the largest vessels under any circumstances except perhaps in NW. gales, with which the squalls are very heavy. The entrance is easy to recognize by the aid of White cape, and when near, St. Lunaire peak 335 feet high on the southwest side of the bay.

Granchain island, the extreme of some islands off a peninsula, forms the south entrance point of this bay. It is 85 feet above high water, and the east point formed by an islet joined to it at low water is steep-to. The entrance is 950 yards wide between this and White Dog point.

Flat rock, always above water, is the extreme of a chain of islets and rocks stretching 800 yards to the northward of Granchain island, and is steep-to on the east and north sides.

Salut island, 65 feet high, a conspicuous conical islet, lies 100 yards south of Flat rock; and Coal islet, a square black cliff, is situated between Salut and Granchain islands.

Vanguard shoal, with 12 feet water, is the eastern shoal off Granchain island. A small spit extends north from it. Adelaide island, open north of Flat rock, leads north of all shoals on the south shore. Adelaide island is the eastern, and Elizabeth island the western of two islets situated northwest of Flat rock. A shoal extends 135 yards south-east from Adelaide island, but with that exception they are bold-to.

Carentonne island, 72 feet high, lies north of these islets, and off a point of the north shore that slopes from White hills 141 feet high. This island divides two coves, the western of which is shallow from the line of Flat rock touching the south extreme of Carentonne island.

Amelia cove to the eastward is foul for a distance of 200 yards from the head. The holding ground is bad, and easterly winds bring in a sea, but temporary anchorage may be had in 15 fathoms.

Red island, 16 feet high, with a shoal close off the southwest extreme, lies east of Carentonne island.

Strawberry island lies west of Carentonne island and the cove west of it, and forms the north point of the entrance to Northwest bay.

Shoals extend 300 yards south and 200 yards west of it.

North reef is the outer of the dangers off the north shore, being 350 yards off, and may be cleared by keeping the extreme of the cliff on Granchain island shut in with Nymph island.

Nymph island, 92 feet above high water, divides Northwest bay from St. Lunaire road. The east point is steep-to, the north shore may be approached to within 100 yards from the line of the points, but the cove

west of this island is blocked by islets and shoals. A rocky patch, with $3\frac{3}{4}$ fathoms water, lies south 200 yards from an islet near Nymph point, the east extreme.

Middle bank, with 10 feet least water, lies midway between Nymph island and the rocks north of Granchain island.

Clearing marks.—To pass east of this bank, keep the east extreme of Oarentonne island in line with the middle of Adelaide island. To pass west keep the west extreme of Red island touching the east extreme of Adelaide island. A vessel will be north of it when White Dog point is shut in with Salut island, and south of it when the same point is shut in with Coal islet.

Northwest bay, entered between Strawberry and Nymph islands, is $1\frac{1}{4}$ miles deep, and affords excellent anchorage in 21 to 6 fathoms as convenient within that entrance, taking care to clear the shoals off the north shore.

St. Lunaire road, between Nymph and Granchain islands and the main, also affords good anchorage in 18 to 21 fathoms with good holding ground, or off the entrance to Southwest bay in 13 fathoms.

Southwest bay, entered from the south extreme of St. Lunaire road, is about a mile deep, with a shallow cove on the west side and some islets on the east side. The passage is in mid-channel, but the bay is only 200 yards wide, and the head should not be approached within 400 yards. Vessels may be careened and repaired here in perfect safety.

Tides.—It is high water full and change in St. Lunaire bay at 7h. 6m. Springs rise 5 feet, neaps $2\frac{1}{2}$ feet. The tidal streams are almost insensible in the bay. Outside, the streams run north or south in the direction of the coast without regularity, at times attaining a velocity of 2 knots an hour, at others there is none at all. Gales from west blow stronger at St. Lunaire than at the neighboring ports at the same time, but usually lull at night.

Little Braha bay is a small cove, 2 miles from St. Lunaire bay, south of which are Little Needles, some peaked rocks.

Needles rocks are nearly 3 miles from St. Lunaire bay, and are curiously shaped, showing well when only a short distance off shore.

Great Braha bay lies $1\frac{1}{2}$ miles southwest of Needles rocks, and is two-thirds of a mile deep within the line of the points. At the head is a small sheltered place for vessels, only 200 yards long and the same distance wide. Between Needles rocks and Great Braha bay is a small cove called Green bay, faced by an island, from which shoals extend 400 yards, ending in John Baptist shoal with 12 feet water, situated south 400 yards from the south extreme of Green island.

L'enfant trouvé rock, on which the sea breaks continually, is situated 200 yards north of Braha point, south of the bay. These are the only dangers, and by keeping between them the harbor may be entered, and anchorage obtained in $2\frac{3}{4}$ fathoms, with fair holding ground.

Tides.—It is high water full and change at Great Braha bay at 7h. 7m. Springs rise 5 feet, neaps $2\frac{3}{4}$ feet.

Braha shoal is a dangerous bank, with the least water 13 feet, ESE. $1\frac{1}{6}$ miles from Needles rocks. The shoal is about 600 yards long and 70 yards wide. A second head lies S. 300 yards from the former, with 6 fathoms water, steep to all round. When the sea breaks on this shoal in fine weather, the fishermen predict northerly winds; it breaks heavily with NE. winds, and is generally shown by ripples.

Clearing marks.—To pass west of this shoal, keep Camel island summit shut in west of White cape. To pass east keep Goose cape open south of French point.

Tides.—The streams are variable here, but over the plateau of the shoal the streams seem to run more rapidly, the eddies indicating there a strength not appreciable a short distance off it.

From Braha to French points, a distance of 3 miles, the coast is barren and faced by steep cliffs from hills about 200 feet high, with some rugged coves affording no shelter.

Cape St. Anthony is a mile to the southwestward of French point, forming between them French bay, 800 yards deep, exposed to south.

St. Mein bay runs in NW. 3 miles nearly from Cape St. Anthony, and is $1\frac{1}{4}$ miles wide at the entrance between that cape and Fox point, the west point of the entrance. The water is deep, and the bay is completely open to southerly winds. On the east side of the bay, at $1\frac{1}{2}$ miles from Cape St. Anthony, is a small fishing village.

Fox point is low, and appears more so from contrast to St. Anthony hill, 413 feet high, and faced by a black cliff that rises immediately west of it.

St. Anthony harbor is entered a quarter of a mile north of Fox point, and can only be distinguished when close to. It runs in SW. for 550 yards, with a breadth of 335 yards, and then turns NW. $1\frac{1}{6}$ miles, gradually widening. Just within the northern bend, and nearly in mid-channel are Piquennais rocks, joined to the west shore by a bank. Neither these rocks nor the east shore are quite steep to, but the harbor may be entered between, and affords good anchorage in 9 to 6 fathoms, mud. It is often difficult to get a long vessel into this harbor through the boats that anchor off the turning point, and the number of fishing vessels that moor there, particularly with winds across the harbor, and the space is narrow for turning a large vessel. The winds are

very baffling for a sailing vessel making the entrance, blowing in eddies from the high lands round the harbor.

Marguerite bay is a quarter of a mile deep, on the northeast shore of this harbor near the head, but both points of the entrance are shoal, leaving a narrow passage in, at a third of the distance across from the south shore.

Water is difficult to obtain here, as boats cannot get near the mouth of the streams.

Tides.—It is high water, full and change, in St. Anthony harbor at 7h. 10m. Springs rise 5 feet, neaps $2\frac{3}{4}$ feet. The tidal streams are scarcely appreciable except in the narrows east of Piquennais rocks.

Crémaillère harbor lies 2 miles southwest of Fox point, the coast between to Savage point, east of the harbor, is barren and cliffy, while Savage point is low, with rugged rocks, and is the east extreme of a peninsula, north of which is a snug cove within Anchor point, the west extreme. Cape Haut-en-bas is the west point of the entrance and faced by high black cliffs. Whale grotto, a deep recess in the cliffs, lies 600 yards within the cape. The harbor is entered west of Anchor point, where it is 600 yards wide, and thence runs northwest a mile long and half a mile wide, affording good anchorage in 10 to 11 fathoms, mud and sand. Shoals lie off Anchor point and the opposite shore for 150 yards, and the head should not be approached within a quarter of a mile to avoid Bear bank, a shoal with 9 feet water 200 yards off the west shore. South winds bring a sea into the harbor and NW. winds produce heavy squalls under cape Haut-en-bas, making the entrance difficult, and sometimes impossible.

Tides.—It is high water, full and change, at Crémaillère harbor at 7h. 13m. Springs rise $4\frac{1}{2}$ feet, neaps $2\frac{3}{4}$ feet. Low water occurs about three-quarters of an hour before the time calculated from the establishment.

Notre-Dame island, nearly a mile south of Savage point, is 85 feet above high water, and flat in appearance.

Notre-Dame shoal, with 12 feet water, lies N. by W. 575 yards from the north point of Notre-Dame island. Angel point shut in with Virgin point leads north of the shoal, and the fishing stage in Virgin cove open south of Virgin point leads south.

Henry island is small, and situated west of Notre-Dame island. Shoals surround it on all sides but the north and west, leaving a deep passage only 150 yards wide between it and Notre-Dame island.

Three mountains are conspicuous hills, 525 feet above high water, situated southwest of cape Haut-en-bas and sloping to Virgin cove. They are an excellent mark for recognizing this locality.

Virgin Cove runs in half a mile from Virgin point, that is situated S. by W. two-thirds of a mile from cape Haut-en-bas, but it is quite exposed to seaward.

Angel point divides this cove from Three-mountain harbor, is low and narrow, but steep-to.

Three mountain harbor is very small, and can contain only fishing vessels which moor to the rocks. Though exposed, the sea does not fetch home. The tidal streams are scarcely perceptible.

Goose cape is a barren peninsula 335 feet above high water, faced by rugged cliffs, that forms the northeast point of Hare bay, and is separated from Notre-Dame island by a channel 400 yards wide. Lobster point, the east extreme, is low, and off it about 210 yards is Lobster shoal, with 6 feet water. To pass east of this shoal, keep St. Anthony hill open east of Notre-Dame island.

Hare bay is nearly 5 miles wide at the mouth between Goose cape and Fishot islands, and is 18 miles deep east and west, containing several good harbors but little frequented. The depth of water is great and the sea often very high in the bay, affording no anchorage till within the line of How harbor and Breut islands, where 16 fathoms water will be found, but no shelter.

Goose cove is the first harbor northwest of Goose cape, 2 miles distant, and has an intricate entrance, through which only $4\frac{1}{2}$ fathoms can be carried. It is entered between Seal point, the northwest extreme of Goose cape, and Flat point, on the main, off which shoals stretch 150 yards.

Coq island, 20 feet high, lies close off Seal point, leaving a passage for boats between them, and a shoal extends 33 yards northwest of this island. Cigale point, on the northeast side of the entrance, is a quarter of a mile east of Flat point, and between them is a cove, with shallow water in it, nearly 400 yards deep. This point is continued by shoal water, just beyond which is La Fourmi (Ant rock) that covers at half tide. Within this rock the harbor expands to a space about 550 yards in diameter, where perfect shelter may be had in $8\frac{1}{2}$ to 5 fathoms good holding ground.

Directions.—It needs a fresh breeze to take the bends into Goose cove, and should not be entered unless the vessel is in perfect command. If the shoal off Coq island is not breaking it would be better to buoy it, and then round it and the island close-to, keeping west of La Fourmi rock, and then turn in to the anchorage.

Water is abundant, but is difficult to obtain, as the boats cannot get close to the mouths of the streams.

Tides.—It is high water, full and change, at Goose cove at 7h. 13m. Springs rise 5 feet, neaps $2\frac{3}{4}$ feet. There is no sensible stream in the

entrance to the cove, and those outside the entrance appear independent of the tide and follow irregularly the direction of the coast, rarely exceeding a knot an hour, and sometimes not perceptible, but they are always strongest off Goose cape.

Bouleaux bay is immediately west of Goose cove and open to the south. All the north coast of Hare bay is high and steep, falling in cliffs to the sea, with deep water close-to.

Ireland, a small bend in the land, lies 5 miles west of Goose cove. Inland northwest of this are Capillaire mountains, with a remarkable summit that is conspicuous from Belle-isle strait.

How harbor, or Bustard bay (Havre Hodidou or Baie des Outardes), is the first harbor within Goose cove, from which it is distant 11 miles. It runs in $1\frac{1}{2}$ miles, is a quarter of a mile wide at the entrance, and expands to half a mile wide near the head. Near the south side of Roland point, east of the entrance, is Estaing bank, close to the shore; the east shore of the harbor runs off shoal for about 200 yards, and there is a small rock off Split point (point Fendue), west of the entrance. The water shoals from the head a little more than half a mile.

Anchorage may be obtained in 13 to 8 fathoms, as convenient, after the harbor is entered.

Ledret rock, with 15 feet water, lies off the harbor SW. by S. half a mile nearly from Roland point, and S. by E. from Split point. The point immediately west of the entrance to the harbor has reefs extending a quarter of a mile from it.

Northern arm, 3 miles west of How harbor, is 2 miles deep and nearly a mile wide, but exposed to S. winds. With winds off shore, fair anchorage may be had near the head in 9 fathoms.

A shoal, with 3 fathoms water, is reported to exist in the middle of this arm, but has been searched for in vain.

Northwest arm is separated from Northern arm by Hare island, that is nearly joined to the main at low water. This arm is completely open to the south, but shelter from off-shore winds may be had in 8 to 5 fathoms. Care should be taken to avoid the bank of bowlders that fringes the whole of the west shore of Hare bay, and extends more than half a mile from the west shore of Northwest arm. A considerable stream runs into the head.

Brent islands lie S. $3\frac{1}{2}$ miles from How harbor, and are easy to distinguish. They are two, about a mile in diameter, nearly joined to each other, and with only a shallow passage between them and the main to the westward. The north, south, and east sides are bold-to.

West brook is southwest of these islands, off which, about a mile from Brent islands, there is fair anchorage in 7 fathoms, entered south of Brent islands.

Caution.—A rocky ledge, awash at high water, extends a short distance from the northeast side of Brent islands.

A shoal, with 3 fathoms water, is said to exist in the middle of the passage to the anchorage off West brook.

Long island forms the south side of this passage, and separates West and South arms. The south shore of this island is steep-to, and the west is joined to the mainland at low water.

Southern arm or Belvy bay runs S. nearly 5 miles from the east point of Long island, between it and a group of islands and rocks fronting Shoal arm, within which there is no passage. The arm is about half a mile wide for 3 miles, when it narrows, to expand again into two basins, with good anchorage in 10 to 8 fathoms.

A shoal, over which there is a depth of from 3 to 15 feet; extends 200 yards from the east extreme of Long island, and a depth of 15 feet is found at about 200 yards from the south shore of this island, except when nearly midway between the east and west extremities, where shoal water of that depth extends nearly 400 yards from the coast.

A small islet lies 400 yards from the south shore of Long island, at 900 yards E. by S. of the West extreme; it is low, flat, and covered with grass in the summer season.

This islet should not be approached within a quarter of a mile on the east side, as shoal water extends from it in that direction.

On the northeast side of this islet there are several light-colored bowlders, which are conspicuous when seen from the entrance to Southern arm.

Directions.—After passing along the southern shore of Brent islands keep in mid-channel. The islet southeast of long island in line with a low wooded point on the mainland, bearing about SW. by S., leads southward of the shoals extending from the south shore of Long island. This low point is, however, somewhat difficult for a stranger to recognize.

Anchorage may be had to the southward of Long island in 8 fathoms, mud, with the south west extreme of that island bearing NNW. $\frac{3}{4}$ W., distant about 1,200 yards.

Spring island, the east extreme of the shoals off Shoal arm, is of moderate height, and easily recognized.

Spring arm, nearly a mile deep, is situated southwest of this island, and though exposed to easterly winds, affords fair anchorage with off-shore winds in $6\frac{1}{2}$ to 8 fathoms.

Between Spring arm and Maiden point, 2 miles east of it, the coast is bordered by islets and rocks at nearly half a mile off; Goëlands island is the west of these, ENE. 800 yards from Spring point.

This arm is encumbered with shoals; vessels when entering should keep in mid-channel.

Shoal.—An extensive shoal, over which there is a depth of $3\frac{1}{2}$ fathoms, and which breaks in heavy weather, lies NW. by W. $\frac{1}{2}$ W. from Goëlands island, distant $1\frac{3}{4}$ miles.

Jehenne shoal, the outer of the dangers, with 9 feet water, lies ENE. $\frac{1}{4}$ E. 700 yards from Goëlands island. This portion of the coast should not be approached within a mile.

Duchyala rock—This rock, having over it a depth of 9 feet, lies NNE. $\frac{1}{2}$ E. from the summit of Goëlands island, distant nearly $1\frac{3}{5}$ miles.

From the rock the summit of Little Cormorandier island appears in line with the northern summit of Great Cormorandier island, and the eastern side of Tête de Mort island in line with the middle of the remarkable round hillock on Grise point.

Maiden arm (Havre de la Tête de Mort), 2 miles east of Spring arm, and $3\frac{1}{2}$ miles from the east extreme of Fishot islands, is entered between Maiden point and Death's Head island. Maiden point, the north point, is a steep slope from a mound 144 feet high, from which east and west the coast is rugged and cliffy. Starboard island is close south of the southern part of this point, sheltering two boat coves which lie west of it.

A peninsula lies west of this point, making two sharp points east and west, and forming the north side of the harbor. Shoulder point, to the east, is steep-to on the south side, but close-to east and north are some rocks. Elbow point to the west is steep-to and vessels may be careened on the north side near the point. Death's Head island is a bare rock 56 feet high, steep-to on all sides but the west, off which a reef extends 300 yards.

Port island lies west of Death's Head island, separated from the main by a channel 50 yards wide with 13 feet water. South of the east point is a small islet.

From the east extreme of Port island the harbor runs up west nearly a mile to Elbow point, where it branches in two bays, the northern of which is shallow. In the western, at 190 yards from the point, is the best anchorage in 7 to $7\frac{1}{2}$ fathoms; temporary shelter may be had anywhere west of Shoulder point, but the average width here is only 300 yards.

Cow point, 2 miles southeastward of Maiden arm, is the turning point of the coast south of Hare bay, and is rocky, covered with grass, and sloping from a summit 135 feet high close inshore. Between it and Maiden arm are several coves open to the east, but affording good shelter to boats from offshore winds. Cow point shoal lies close southeast of this point.

Tides.—Northwest of Cow point the flood runs generally WNW., and the ebb ESE. Northeast of this point the flood runs W., and the ebb in the opposite direction about the Fishot islands.

Fishot islands may be easily recognized by their distance from the shore and the summit of cape Croix, round and elevated 177 feet.

Little Cormorandier, the northern of this group, is small, 95 feet high, cliffy and steep-to except at the north end, from which low rocks extend 225 yards, steep-to at the outer end.

Great Cormorandier, 174 feet high and half a mile long, is the eastern of the group, and is separated from the south side of Little Cormorandier by a passage $\frac{1}{4}$ of a mile wide, in the middle of which is a rock with 10 feet water, that may be avoided by keeping either shore close on board. Close to the shore near the east end are two islets, and Pigeon island, a small cliffy rock, is separated from the south side by a deep channel 100 yards wide.

Great Cormorandier rock, with 5 feet water, is situated E. $\frac{3}{8}$ N. $\frac{1}{4}$ of a mile from Pigeon island. To pass east of it keep the summit of St. Julien island open east of Fishot islands; and to pass west of it, keep the south end of Pigeon island in line with the north point of Great Verdon island.

Great Verdon island, south a little more than half a mile from Great Cormorandier island, is 121 feet high, about a quarter of a mile in diameter, and a steep-to all round.

Mélier islet, a black rock, is in the north part of the passage between Great Verdon and Cormorandier islands, and is steep-to except on the west side, whence a reef extends 190 yards.

Mélier shoal, with $4\frac{1}{2}$ fathoms, is situated SE. by E. $\frac{1}{4}$ E. 150 yards, and Melier bank with $5\frac{1}{2}$ fathoms, E. by S. $\frac{1}{4}$ of a mile from Mélier islet.

Massacre islet, WSW. $\frac{3}{4}$ W. $\frac{1}{8}$ of a mile from Mélier islet, is a bare rock and steep-to.

Monk islet, SW. $\frac{1}{4}$ S. three-quarters of a mile from Massacre islet, is a bare rock lighter in color than Massacre islet, and steep-to. South of the line joining these islets and between them are the following dangers:

Massacre shoal, with 5 feet water S. by E. $\frac{1}{4}$ E. 300 yards from Massacre islet.

Monk shoal, awash at low water, ENE. $\frac{1}{2}$ E. 900 yards from Monk islet. Little Monk shoal, with 13 feet water, lies NE. $\frac{3}{4}$ E. 200 yards from Monk shoal.

Clearing Marks.—To pass south of these shoals, keep the summit of St. Julien island in line with the west cliff of Fishot island S. by W.,

and to pass north keep the north extreme of Little Cormorandier in line with the north extreme of Massacre islet NE. $\frac{1}{4}$ N.

Little Verdon island is separated from the southwest side of Great Verdon island by a clear channel 270 yards wide, is 72 feet high, and steep-to.

Northeast island, composed of several mounds and islets joined to it at low water, is 270 yards from Little Verdon island. The northeastern part, called Le C  las, is shoal for 150 yards, leaving only a narrow passage with deep water between it and Little Verdon island. The south shore is bold-to, and the south end falls abruptly from cape Croix, a remarkable round hill 177 feet above high water. The northwestern portion called Frommy island has two flagstuffs on it, the higher at the northwest end, erected on a hillock 40 feet above high water. Pouilleux islet lies off the northwest end of Frommy island with a channel between, 150 yards wide; but there is only a narrow gully through for vessels of 13 feet draught close to Frommy island. Pouilleux islet is steep-to on the north side.

Fishot island, the largest of the group, is steep-to on the northwest side, over which the summit rises 193 feet above high water. The other sides are deeply indented, but there is no danger beyond the line of the points. Off the west point, nearly joined to the shore, is an islet steep-to, and southwest nearly 400 yards from this is South islet, fringed by shoal water, but with a good passage between it and Fishot island.

Fishot harbor lies between Fishot and Northeast islands, and is entered by two passages, that from the north between Watering Cove point and Frommy island, and the southern called Flago passage. This harbor is available for small vessels only, and should not be attempted without a pilot, as the channel is narrow, the turns are sharp, and anchorage space small.

Directions.—Pass northwest of Pouilleux islet, then steer midway between Ring-bolt and Watering Cove points, till the inshore part of the southern fishing stage on Northeast island is a little open west of the next stage north of it. Keep this mark on till Ring-bolt point is passed, and then steer 50 yards towards the summit of cape Croix to avoid a shoal off Fishot island. Haul to S. by E. $\frac{1}{4}$ E. before the fishing stage on Frommy island is reached, and anchor in 14 feet in the middle of the space. If wishing to proceed to the inner basin, bring the flag-staff on the summit of Frommy island in line with the south part of the fishing stage on that island. This will lead in 10 feet water between a shoal to the north and Moucl  re rock to the south. The first anchor should be let go on that mark when the west houses on Northeast island open west of the fishing stage at the west extreme of that island, and the second on this latter mark, 100 yards farther.

Flago passage has 8 feet in it at low water. A bank that dries in the middle makes two channels; the northern is the deeper and most direct, but should not be taken without a boat to show the way, and then at high water and slack tide.

Tides.—It is high water, full and change, at Fishot harbor at 6h. 58m.

Madame island is the extreme of a group of islands nearly joined to each other and the main at low water, forming the north side of Fishot channel, nearly three-quarters of a mile wide.

Répissé rock lies N. $\frac{1}{2}$ E. 400 yards from Madame island. It has on it 3 feet water, and is the extreme of a ledge extending from Madame island, part of which uncovers.

Clearing marks.—Pouilleux islet, touching Le C  las, the north point of Northeast island ENE. leads east of this and Virgin rocks. From this direction a curious inclined rock shows on Frommy island. To pass south of R  piss   rock, keep the whole of St. Julien island open east of Madame island S. $\frac{1}{2}$ W., and to pass north, keep the summit of Great Buse over the point north of the entrance to Little Islets harbor W. $\frac{3}{4}$ S.

Four harbor, half a mile west of Cow point, is fit for small vessels only, that can anchor in a space 300 yards long and 200 yards broad in 5 to 6 $\frac{1}{2}$ fathoms, or moor close to the shore in an arm 100 yards wide running to the westward. The entrance points are 200 yards apart, but the clear channel in is only 100 yards wide between the shoals off the points.

Tides.—It is high water, full and change, at Four harbor at 7h. 5m.

Virgin cove, south of Four harbor, has no anchorage. At the south side is a peninsula dividing it from Little Islets harbor, off which shoals extend a short distance.

Virgin rock.—The east extreme of these shoals is 400 yards from the peninsula, and SE. $\frac{1}{2}$ E. 335 yards from the east point of the entrance to Four harbor. It has 7 feet water on it and is steep-to on the north side. The southwest hill on Fishot island open east of Madame island SE. by E. $\frac{3}{4}$ E. just clears east of this shoal.

Directions.—In going to Four harbor from the eastward, the only danger is Cow point shoal; that may be cleared by keeping the summit of Great Buse in line with the summit of the south hill over Virgin cove, and when Pouilleux islet is in line with the north extreme of Le C  las point the harbor may be steered for.

From the westward, St. Julien island must be kept open of Madame island until Pouilleux island is in line with the north extreme of Le C  las point, and then, being past R  piss   rock, the harbor may be steered for.

Little Islets harbor is west of Madame island, and formed between English island, that is nearly joined to the west end of Madame island, and the peninsula south of Virgin cove.

In the entrance is Little Madame island, on the northwest side of which is the only passage in, clear in mid-channel and 50 yards wide. The harbor, fit for small vessels only, is 300 yards long and 200 yards wide with anchorage in 13 feet water between the two eastern fishing stages on the north side.

Directions.—Having passed Répissé rock as directed, the entrance may be steered for, and Little Buse summit brought in line with the right end of the fishing stage at the head of the harbor, will lead in mid-channel to the anchorage.

Le Goulot, the channel between English island and the main, may be taken by boats at high water.

Fishot channel is narrowed by the following shoals:

Mid-channel rock, awash and always breaking, lies 540 yards from Fishot island between it and the east point of English island. There is a good passage on each side, that nearest Fishot island being the widest.

Bruyante rock, awash and nearly always breaking, lies E. $\frac{3}{4}$ E. 300 yards from English island and 400 yards from Mid-channel rock. It is steep-to on the south side, but nearly joined to English island by shoals.

Louis Lemaire shoal is the western of these, with 6 feet water, SE. $\frac{3}{4}$ S. 200 yards from English island.

A shoal, with $4\frac{1}{2}$ fathoms, is situated SE. by E. $\frac{1}{4}$ E. 250 yards from Louis Lemaire shoal.

Directions.—To pass between Mid-channel rock and Fishot island, keep Massacre islet its own breadth open north of Fishot island N. $\frac{3}{4}$ E. To pass between Mid-channel and Bruyante rocks, keep Little Cormorandier a little open north of Fishot island NNE. $\frac{3}{4}$ E. If proceeding to Great Islets harbor, the entrance must not be steered for till the gap in the two hills of Double island is open south of Gros-plomb islet.

Chasseurs island, west of English island, is separated by a narrow channel 200 yards wide, deep in the middle. A rock lies between this island and the southeast point of English island.

Gros-plomb islet lies close southwest of Chasseurs island.

Double island, formed of two hills nearly joined at the base, is 350 yards southwest of Chasseurs island and is steep-to.

Sournoise shoal, with 13 feet water, lies SE. $\frac{1}{4}$ E. one-third of a mile from Chasseurs island.

Clearing marks.—The east side of Madame island, seen open east of English island N. $\frac{3}{4}$ E. leads east of this shoal; the fishing stage at the northeast end of Chabert island, seen between Gross-plomb and Chasseurs islands NW. $\frac{3}{4}$ W. leads west; the north side of Little Cormorandier island touching the south end of English island NNE. $\frac{1}{2}$ E. leads north, and the north slope of Double island, shut in with Gros-plomb islet W. $\frac{1}{4}$ N. leads north of this shoal.

Great islets harbor may easily be recognized by the peaks of Great Buse, 531 feet, and Little Buse, 384 feet above high water, on the west side of the harbor. The entrance west of Double island is 800 yards wide to Jehenne point, bare and steep, sloping from the Buse hills. The harbor runs in northwesterly a little more than a mile to River point, where it turns sharp to the southwest in an arm 190 yards wide navigable for a quarter of a mile. Chabert island is nearly joined to the east shore, northwest a third of a mile from Double island, and shelters the usual anchorage northwest of it in 12 fathoms, mud. East of River point is an island joined to the main at low water, southwest of a shallow cove. Off the south shore are two small islets. The shores of the harbor are nearly steep-to, and there is no danger in proceeding to the anchorage northwest of Chabert island, or that available for small vessels in $3\frac{1}{2}$ fathoms north of River point. On Grelins point, west of a little cove on the north shore of this anchorage, a small vessel may be careened and repaired.

Tides.—It is high water, full and change, at 7h. 22m. The streams are very irregular and generally follow the wind in Fishot channel. If the wind be S. the stream inclines NW. or NE. according to flood or ebb. This same wind produces an E. stream between Chasseurs and English islands.

Point Enragée is situated S. by E. $\frac{1}{4}$ E. $1\frac{3}{4}$ miles from Jehenne point. The coast between is high, indented by several deep, open coves, and is steep-to, but a short distance to the eastward are some deep banks on which boats fish. The coast then trends SSW. $\frac{1}{2}$ W. $1\frac{1}{4}$ miles nearly, to Great Goose harbor.

Goose island, S. by W. $\frac{1}{4}$ W. 1 mile from point Enragée, is cliffy in parts, barren, and lighter in color than the near coast, from which it is separated by a channel 70 yards wide, through which, nearer the main, 13 feet can be carried at low water. Several islets and rocks lie close to it, leaving a passage 70 yards wide between it and a long point of the main, that is passable only by vessels drawing 6 feet water, by keeping near the island shore.

Great Goose harbor, formed by the long point and these islands, is only available for vessels drawing less than 10 feet water, and the holding ground is bad.

Baleine rock, 5 feet above high water, lies south of the southern passage, and is continued S. by W. $\frac{3}{4}$ W. 200 yards by a ledge, on which there is only 3 feet least water.

Little St. Julien harbor is situated west of Little St. Julien point, S. by W. $\frac{3}{4}$ W. 400 yards from Baleine rock. It is 850 yards long and 150 yards wide at the entrance, narrowing gradually to the head, and exposed to NNE., but Baleine rock and the narrow entrance shelter the fishing vessels, which moor head and stern in 5 fathoms, good holding ground, abreast a gap in the cliffs on the east shore, $\frac{1}{4}$ of a mile within the entrance. Little St. Julien point is black, with rugged cliffs and steep-to.

Great St. Julien harbor lies south of this point, and is 400 yards wide at the entrance, between Little St. Julien and Jeanne points. Jeanne point is a bluff cliff and steep-to. The harbor runs SSW. $\frac{3}{4}$ W. half a mile, narrowing to 200 yards between Aurora point, southwest of a cove on the north shore, and a steep slope on the east shore, from which it extends a third of a mile, narrowed by shoals stretching 100 yards from the east shore.

A shoal lies 100 yards from the north shore, nearly midway between Aurora point and the fishing stage nearest to it.

This harbor is fit for small vessels only, which may find temporary anchorage in 5 fathoms just southwest of the east stage on the north shore. Fishing vessels moor head and stern in perfect security, though NE. winds bring a little sea into the harbor.

St. Julien island is barren and makes in two summits, the higher, near the northeast end, 220 feet above high water. The east and south shores are bold-to; from the north shore, under the summit, is Northwest shoal, extending 150 yards, and the southwest end is continued by islets and rocks, leaving a clear channel only 135 yards wide between them and the south spur of Jeanne point.

Souris rock, awash at low water, lies 100 yards southeast, and Souriceau rock, with 3 feet water, 100 yards southwest of the southwest islet. St. Julien island is a good landmark and stands out prominently from the line of the coast.

Mulou shoal, with $3\frac{3}{4}$ fathoms water, is situated NNE. $\frac{3}{4}$ E. 270 yards from the northeast point of St. Julien island, and breaks in bad weather.

Jeanne channel is passable ordinarily for vessels drawing less than 13 feet water, by keeping near the main until abreast the islets and then mid-channel. Those of larger draught should buoy the passage before taking it. This passage is made more difficult from the strong tides that set through it, flood stream running NW. and the ebb SE., following regularly the rise and fall.

There is no difficulty in beating to St. Julien harbors from the eastward, the Baleine shoal being cleared by keeping the first fishing stage

within Aurora point open south of Little St. Julien point. It is advisable in square-rigged vessels to tow or kedge up rather than beat from the entrances to the anchorages.

The coast from St. Julien island to Croc harbor, SSW. $\frac{1}{4}$ W. nearly 5 miles, is bold-to. At half a mile southwest of Jeanne channel is Black or Irish islet, a barren rock steep-to all round, with a boat passage between it and the shore, lying just southeast of a cove, over which, through a gap in the hills, the masts of the vessels in Great St. Julien harbor can be seen. Flamands cove, completely exposed, is southwest of Black islet, southwest of which is St. Julien peak, 279 feet high, sloping steeply to the coast, and resembling the summit of Windy point. From this to Croc harbor the coast is clear. Corbeau islet and Petit rocher lie close to the shore, the latter near the north point of the entrance.

Croc harbor is entered between Grouts point on the north and Windy or Barren point on the south side, 1,200 yards wide. Coming from north-eastward it is advisable to take a departure from the north end of Groais islands, as the entrance is not easily distinguished on that bearing.

From the entrance the harbor runs in a general direction NW. $1\frac{1}{4}$ miles nearly, when it divides in two arms, Le Fond, extending north half a mile, and Epine Cadoret, running the same distance southwest to Freshwater creek at the head. West of Windy point, Irish bay extends nearly a mile. Abreast the north point of this bay the harbor is half a mile wide, but gradually narrows, except in the basin at the junction of the two arms.

Grouts bay.—From Grouts point the coast curves to Grouts bay, 375 yards deep, containing shelter only for boats, with shallow water 150 yards from the north shore. From Bonhomme point, the west point of Grouts bay, the coast is steep-to, except in Fisherman cove, 600 yards west, that is fit for boats only within the line of the points. There is a fishing establishment in this cove. Genille point, west of this cove, forms an elbow in the bay, sloping from Genille peak, 213 feet high, whence the shores are bold-to near the head of Le Fond.

Observation point, the south point of the entrance to Epine Cadoret, is bold-to. About a quarter of a mile within, on the west side, is Cemetery point, on which stands a large white cross. Just beyond the first elbow in this arm is Careening point, where several vessels have been hove down. From Observation point to Blanche point, north of Irish bay, the coast makes in small coves, the points of which should not be approached within 100 yards.

Irish bay is nearly three-quarters of a mile wide between Blanche and Windy points. The south shore is foul from half a mile west of Windy point to the head; Le Muloux, a rock awash, lying 350 yards off shore. La Baleine or Folle rock, 3 feet above high water, lies off the west shore, leaving a narrow passage between it and the main. This

bay is completely exposed to the eastward, and offers shelter for small vessels only, behind an islet off the fishing establishment at the head of the bay.

Windy point slopes from a barren hill 404 feet high, with whitish rugged slopes. On the summit is a beacon. This point is not easy to distinguish from the northeastward, though prominent from other directions.

Observatory islet, low and steep-to, lies close southeast of this point, leaving a narrow passage between it and the shore.

Anchorage may be had anywhere within Genille point. Vessels of war usually anchor off Observation point in 15 fathoms, and moor for prevailing winds at NW. When these winds are violent, squalls come alternately from Épine Cadoret and Le Fond with great force, straining the cables with heavy jerks. Merchant vessels moor in 16 to 19 fathoms between Genille and Observation points, where a little sea heaves in with SE. winds, but they feel the squalls less from NW. winds.

Water and wood may be obtained easily.

Tides.—It is high water, full and change, at Croc harbor at 7h. 30m. Springs rise $4\frac{1}{2}$ feet. The streams are sufficiently strong to keep a vessel tide-rod in light breezes.

This harbor is the headquarters of the French station. A frigate can beat in as far as Genille point, but it is better, with fresh northerly breezes, to let go an anchor under foot off Grouts point, in 18 fathoms, gravel, and wait until the wind drops or changes.

Gray islands is the name by which Newfoundlanders know the two islands Groais and Bell, south of Croc harbor.

Groais island, SE. by E. 7 miles from Windy point, is high and cliffy, nearly flat in outline, and can be seen 40 to 50 miles. It is 7 miles long and 3 miles wide, is shaped like a triangle, with the apex south, and is thickly wooded.

Islets and rocks extend from the west point, that should not be approached within a mile.

The Sisters, two steep rocks, lie off the northeast point, and the rest of the coast is so straight and steep that there is no place of shelter even for boats, and few where one could be hauled on shore.

Bell island (Belle île du Petit Nord) is separated from the south part of Groais island by a clear channel $5\frac{1}{2}$ miles wide. It is $8\frac{1}{2}$ miles long and about 6 miles wide, is flat, high, and steep on the coast, except on the shores of a bay on the southwest side, and steep-to on north and south sides. Northeast rock (île à Herpin), two-thirds of a mile from the northeast point, is a barren islet, with several rocks between it and the shore.

L'Épervier, a rock with 10 feet water, on which a vessel of that name struck in 1849, is situated northeast a little more than half a mile from Northeast rock.

Green island lies near the coast of Bell island, a mile to the northward of the southwest point. A rock, with 2 feet water on it, lies W. 900 yards from this island. To pass west of it keep Groais island open north of Bell island.

A reef, part of which uncovers at low water, lies SE. by S. half a mile from the west point, and at a quarter of a mile southwest from the same point is a rock with 7 feet water, and a clear passage between it and the point close to the latter.

Rocky bay, on the southwest coast, is the only place where small vessels and boats may find shelter, behind a cluster of rocks and islets.

South rock (îlot Rouge) is the western of these, lying nearly 2 miles off shore. It is of a red color, and there is a clear passage inshore, but a rock with 5 feet water is situated SW. 350 yards from it.

Canes island, the largest and northern of the group, is low, with a round hillock covered with grass in the summer. It is surrounded by rocks, the two extremes of which are a rock with 10 feet, half a mile WSW. $\frac{1}{4}$ W. from the southwest extreme, and a rock with 5 feet water, 800 yards W. $\frac{3}{4}$ N. from the center of Canes island.

A ledge, with $3\frac{3}{4}$ fathoms water, extends southwest 1,600 yards from Canes island. Large vessels must avoid this, as there may be shoaler water.

Anchorage may be had in Rocky bay in 2 to $2\frac{3}{4}$ fathoms, sand, passing west of Canes island at 1,200 yards distance, to avoid the dangers spoken of.

Southwest harbor.—The French vessels fishing off Bell island moor for the summer inside a group of rocks that forms the north point of the entrance to Rocky bay. To take up a position needs fine weather, and a pilot or long experience of the place.

The coast from Windy point runs high and steep SW. 2 miles to Million cove, open to the eastward, where there is a fishing settlement, with indifferent shelter even for boats.

Pillar cove, 3 miles from Million cove, is formed by the main and the north part of cape Rouge peninsula. It is completely open to the eastward, and bad for anchorage; at the head is a fishing post.

Cape Rouge is the south extreme of cape Rouge peninsula, $2\frac{1}{2}$ miles long and $1\frac{1}{2}$ miles broad, culminating in a peak over cape Rouge 492 feet high. Pyramid point, the northeast extreme, is a pyramidal rock, close southeast of which is a low reef, separated by a narrow boat pas-

sage. A short distance west of this point, in Pilier cove, is a natural excavation, supported by a pillar, from which the cove derives its name. Truite point, the west extreme, is the north point of the entrance to Cape Rouge harbor; immediately north of it is the settlement, and the coast runs north nearly 2 miles from it to the isthmus, 850 yards across. The whole coast of this peninsula is bold-to, till within an islet 600 yards southeast of the isthmus.

Conche peninsula is southwest of Cape Rouge peninsula, Frauderesse point, at the east extreme, being distant 1,400 yards from Truite point. It is $3\frac{1}{2}$ miles long, a quarter of a mile wide at the extremes, and a mile wide at the isthmus, which is 350 yards across. Frauderesse point is fringed by rugged, curiously shaped rocks. Off it a bank extends 180 yards, and shoal water lies off the north shore of this peninsula west of the point, extending nearly a quarter of a mile from a white cross on point Dos-de-cheval.

Off Cape Fox, the south extreme of the peninsula, islets and rocks extend 200 yards, but with these exceptions the peninsula is steep-to.

Cape Rouge harbor is formed by these peninsulas and the main, and is divided into Biche arm to the north, and Southwest bay. The mainland coast is steep-to and nearly straight. A small bend in it, opposite the entrance of the harbor, is Priests cove.

Biche arm contains perfectly secure anchorage, easy of access with any wind. The best anchorage is in 15 fathoms off a remarkable cascade on the west shore, WNW. of Partridge point, low and grassy, the bottom mud, good holding ground.

Souris or Champ-paga shoal, the only isolated danger in Southwest bay, is the summit of a bank of rock 350 yards long and 250 yards broad, in the middle of which is 6 feet water. To pass west of this shoal keep Cod-pile (a little peaked rise on the hills north of Conche harbor) in line with the northwest fishing stage; to pass north keep the north point of Bell island well open east of Frauderesse point; and to pass south keep the north point of Rouge island in line with Frauderesse point.

To anchor in Southwest bay the above leading marks must be attended to, and a good berth given to the rocks off point Dos-de-cheval.

Anchorage may be had in 12 to 16 fathoms, gravel and a little mud, near the head, but the holding ground is only fair. Vessels with good tackling hold on well, through the heavy squalls that come with NW. and west winds and the little sea brought in by easterly winds.

Tides.—It is high water, full and change, at Cape Rouge harbor at 7h. 1m. Springs rise $5\frac{3}{4}$ feet.

Rouge island lies E. $\frac{1}{2}$ S. $3\frac{1}{2}$ miles from Frauderesse point. It is composed of red rock covered with grass at the summit, is 800 yards long, 350 yards wide, and steep-to.

Conche harbor, between the peninsula and the main, is west of the isthmus, and runs up $2\frac{1}{2}$ miles from cape Fox, being $1\frac{3}{4}$ miles wide at the entrance, diminishing gradually to the head. The fishing establishments are on the peninsula, $1\frac{1}{2}$ miles from cape Fox, off which the fishing vessels moor, head and stern.

Martinique cove, west of the head of the bay, is exposed to winds from S. by E. to SW., and the holding ground is not good, but vessels manage to hold on there all the fishing season.

Anchorage.—There is anchorage in 10 to 14 fathoms off Martinique cove. SW. winds are the most dangerous and blow with great violence. There is good anchorage off the western village, on the north side of the harbor, in from 12 to 7 fathoms, with the church bearing ESE. $\frac{3}{4}$ E. Good anchorage can also be found in 6 fathoms, mud, off the center of Silver cove, on the east side of the harbor, about $1\frac{1}{4}$ miles north of cape Fox.

Vache-gare is a large pale yellow patch on the coast 3 miles west from cape Fox. Vache-gare cove, a slight indentation in the coast, lies north of it.

Hilliers harbor (Havre de Boutitou) is difficult to recognize from the north, but there are three parallel gaps in the cliffs that resemble a ship under sail close to the coast, the southern of which forms the point of entrance to the harbor, and is $7\frac{1}{4}$ miles SW. of cape Fox. The harbor is very small, is open to southeast, and divided into two little coves at the head, the eastern of which alone affords shelter to three or four vessels in 6 fathoms, moored head and stern, along the south shore of the cove. Dolo point is the west turning point on the shore south of this cove.

Boutitou rock, with 7 feet water, lies three-quarters of a mile south of the harbor and 400 yards off the coast. There is deep water all round, and a passage between it and the coast.

To pass east of this rock keep the eastern fishing stage in the harbor shut in by Dolo point NNW., and to pass inshore of it keep Canada head shut in west of Brown rock point, a small projection about a quarter of a mile west of the shoal.

Tides.—It is high water, full and change, at Hilliers harbor at 7h. 2m.

The coast from Hilliers harbor to Canada bay is high and steep, with some rocks awash quite close to the coast.

Canada bay (Baie des Canaries), $5\frac{1}{2}$ miles southwest of Hilliers harbor, is entered between cape Daumalen on the north and Canada head on the south, a width of $1\frac{3}{4}$ miles. It expands within the entrance, Bide and Chimney arms running northward, and Gouffre and Canada harbors on the south shore.

Englée island (Ile de Grévigneux) lies close to the northwest side of cape Daumalen. It is tolerably high and partly wooded; the outer sides

are steep, particularly the west shore; and White point, the south extreme, is so called from the remarkably white color of the rocks.

Aiguillettes island is joined to the south extreme of Englée island by a bank of sand, is wooded and steep, and divided by a narrow channel from cape Daumalen.

Aiguillettes harbor, situated between Aiguillettes island and cape Daumalen, is fit for small vessels only, being encumbered by small islets. A small boat channel leads to Englée harbor.

Aiguillettes rock, with 15 feet water, lies S. $\frac{3}{4}$ E. 600 yards nearly from the east point of the entrance to Aiguillettes harbor. The water is deep round this shoal, that occupies a small space only, and the sea breaks on it with strong westerly winds. There is a good passage between it and the shore to Aiguillettes harbor.

To pass west of it keep a cascade on the west shore of the bay open of White point on Englée island.

Anchorage.—There is a good sheltered anchorage in 13 fathoms northward of Englée island, off the entrance to English cove.

Englée harbor (Havre de Grévigneux) is north of the island of that name, and can only hold two or three vessels, moored head and stern, in the line of Englée island, with an anchor let go in the middle of the entrance in $9\frac{1}{2}$ fathoms, good holding ground.

Bide arm, entered immediately north of Englée island, runs in a straight line N. by E. 5 miles nearly, with an average breadth of 600 yards. The east shore is high and wooded, the west is wooded but not so high.

Hermit rock, with 6 feet water, lies 200 yards off the east coast of this arm, and N. by E. 800 yards from Englée island.

To pass west of it keep Aiguillette island shut in completely by Englée island. The rest of the east shore is clear of danger to the head.

Bide shoal stretches from the west shore nearly a third of the distance across the arm, 600 yards north of a cove situated 3 miles within the entrance. There is 4 feet least water on this shoal. Off the north point of the cove a shoal extends a short distance.

To pass east of these shoals keep Calvary hill at the west side of Canada harbor open east of Milau point, the extreme seen on the west side of Bide arm.

Rocks awash lie 200 yards off the west coast of this arm, a little within Lard point, that forms the west side of the entrance, and also between Lard and Milan points, the second prominent point in.

Anchorage.—Vessels must proceed at least 2 miles within Lard point to find an anchorage, but greater security may be found by anchoring a

little within the middle of the cove 3 miles within the entrance, in 9 to 13 fathoms, in the middle of the arm, or proceeding beyond Bide shoal, by keeping a third of the distance across from the east shore. Perfect shelter may be found in the basin at the head in 11 fathoms, but vessels must not swing within 200 yards of the shore.

The promontory that separates Chimney bay from Bide arm is moderately high; the south extreme is called Lard point, from which the coast curves northwestward in Lard cove, and thence to Marten point, the east point of the entrance to Chimney bay, that is white in color and forms the west side of a creek with several huts on the shores. This coast is rugged and fringed by rocks.

White islet lies SW. by W. 600 yards from Lard point, and is conspicuous from its color. Flat islet lies 200 yards farther to the southwest.

There is a good passage between these islets and Lard point, and a channel between them for vessels of moderate draught.

Herring shoal, with 3 fathoms water, lies S. by W. $\frac{1}{2}$ W. about 600 yards from White islet.

Cod rock, with 13 feet water, lies SE. by S. half a mile from White islet.

To pass south of these keep Milan point open east of Lard point, and to pass west of them keep the southern summit of the Chimnies or Cloud hills open west of Green islet, on the west shore of Chimney bay.

Wolf shoal, with 3 feet water, is S. by E. $\frac{1}{4}$ E. a little more than $\frac{1}{2}$ mile from Marten point, and 600 yards from the shore. Some banks with $3\frac{1}{2}$ and $4\frac{1}{2}$ fathoms extend 400 yards NW. $\frac{1}{2}$ N. from this shoal. There is a good passage between them and the near land. To pass west of these banks keep White point, on Englée island, a little open south of White islet.

Chimney bay extends nearly 7 miles N. $\frac{1}{2}$ E. from Marten point, where it is $\frac{3}{4}$ of a mile wide. At the head Northeast brook and Beaver cove continue it to the north and Castor cove to the west, navigable for a mile, and thence northwest in a shallow arm, $5\frac{1}{2}$ miles.

Marten rock, awash at low water, is N. $\frac{1}{4}$ W. $\frac{1}{4}$ of a mile from Marten point and 300 yards off shore. To pass south of it keep the north point of Englée island touching Lard point, and to pass west keep a third of the distance across from the east shore.

Cabin point is on the east shore, $1\frac{1}{4}$ miles within Marten point. It is low and should not be approached close-to. At this point the bay is 550 yards wide to Grosse point, on the west shore.

Northeast brook is at the head of a cove, the entrance of which is completely barred by a shoal, on which there is only 10 feet water. Off

the west point of this cove are two islets, making the east entrance point of another cove called Beaver cove.

Zephyr rock, with 2 feet water on it and steep-to, lies in the middle of Northeast brook cove.

Weymouth or Castor cove, on the west shore, is clear of danger, and near it wood can be obtained for repairs.

A shoal extends from Weymouth cove point in a northeasterly direction, with as little as 7 feet water on some parts. The fishermen report several rocks nearly awash north of that point.

Grosse point, $1\frac{1}{2}$ miles nearly from Good point, is the north point of Chimney cove, a little bay open to the southward.

A shoal having over it a little more than three fathoms water lies nearly in mid-channel between Weymouth cove point and the point next north of it.

A depth of 10 fathoms will be found southward of Weymouth cove, and the depths decrease somewhat rapidly toward the shore.

Vessels entering Chimney bay are recommended not to proceed above Weymouth cove.

Otter cove, on the west shore opposite Marten point, has shoal water fringing the shore for some distance. Green islet, a small moss-covered mound, with brushwood at the summit, lies a little outside the points of this cove. It may be approached with safety to within a short distance.

Bad rock is small and always above water, east of which lies some foul ground. There is a passage between it and the shore, but vessels should pass some distance east of it in going up the bay. It lies N. $\frac{1}{4}$ E. 550 yards from Good point, the east point of Otter cove.

Anchorage may be had in the middle of Otter cove in 8 fathoms, sand and mud, SSW. from Grosse point in 18 fathoms, sand, or a little north of Cabin point. Castor cove affords good shelter in 11 to 16 fathoms, or in the west cove opposite, named Beaver cove, in 10 to 8 fathoms.

The Chimnies or Cloud hills are remarkable mountains, with rugged summits 950 feet high, lying 2 miles inland from Grosse point, and can be seen a great distance when SE. by E. of the entrance to Canada bay.

Torrent cove is $1\frac{1}{2}$ miles south of Otter cove, and is so named from a cascade falling over high land at the head.

A rock that covers lies N. by E. a quarter of a mile from Torrent cove and 190 yards from the shore.

Gouffre harbor is $2\frac{1}{4}$ miles south of Torrent cove, and extends south $\frac{1}{2}$ of a mile; is 1,200 yards wide at the entrance, diminishing gradually

to the head. It is entered between Gouffre islet, 100 yards off the west shore, and Gouffre point to the eastward. The islet is a small rocky mound, nearly steep-to on the south side, but difficult to distinguish when under the land. The point is long and low, surrounded by rocks and shoals, that should have a good berth in turning in or out of the harbor. This harbor is much frequented, and affords good shelter south of Gouffre islet, with cape Daumalen shut in with Gouffre point in 13 fathoms, hard bottom but fair holding ground. Fishing vessels that remain moor head and stern, and though exposed to northerly winds are secure.

Water may be easily obtained on the west side of the harbor, and another stream discharges into the head, but a fringe of bowlders renders it inaccessible to boats.

Canada harbor, SE. $1\frac{1}{2}$ miles from Gouffre point, is entered between Calvary point and Canada head.

Calvary point is faced by white rocky cliffs, the extremes of a round hill surmounted by a cross. Canada head is bold, clifty, and steep-to. In this harbor are the principal fishery establishments of the bay, and there is a sufficient depth for mooring vessels, but the holding ground is bad, and the harbor is completely exposed to northeasterly winds that bring in a heavy sea.

Tides.—It is high water, full and change, at Bide arm at 6h. 57m., and at Gouffre harbor at 6h. 46m. Springs rise $5\frac{1}{2}$ feet, neaps $1\frac{1}{2}$ feet.

The coast from Canada head continues high and bold-to to the southward, 3 miles, to cape Goboso. Half way between these points is Raincé (Rience), a little creek where is a fishing post, but bad shelter even for boats. The coast continues high from cape Goboso SW. $1\frac{3}{4}$ miles, to Dégrat-de-cheval, a small cove with a fishing post and shelter for boats. The land is barren and of a red color, except Green cape, a high, peaked, woody hill over the coast a mile west of Dégrat-de-cheval.

Hooping harbor (Havre Sans-fond), $6\frac{1}{2}$ miles from Canada bay, is nearly half a mile wide at the entrance between Duck bill point, a high barren, reddish, mound sloping in an inclined point on the east, and a high, dull red, clifty point on the west. Within the entrance the harbor divides into East arm $1\frac{1}{2}$ miles, and North arm $2\frac{1}{2}$ miles deep. The shores are wooded and very high, except at the head of East arm, where there is flat land and a good stream near the fishing establishments. The anchorage is off these, exposed to southerly winds, but the holding ground is good. Large vessels should let go in 16 fathoms, but small vessels can moor near the shore in 6 fathoms water. It is exposed to squalls from the North arm, and should be used only as a temporary anchorage. The anchorage near the head of the North arm is perfectly sheltered, but the water is deep, 16 to 21 fathoms being found close to the head. Vessels should anchor off a sandy cove on the west

coast, into which a streamlet falls, and moor well against squalls from north to west. It is often impossible to beat into this harbor when those winds prevail.

Little Hooping harbor (Petit Sans-fond), a little less than 2 miles southwest of Hooping harbor, is an open cove with a large cascade at the head, and a fine birch wood in the surrounding valley. There is no shelter except from off-shore winds.

Cape d'Argent, $1\frac{1}{2}$ miles southwest of Little Hooping harbor, is a high cliffy projection, whiter in color than the surrounding coast.

Fourché harbor (Baie de Fourchette) is entered between two high reddish cliff points, $1\frac{1}{2}$ miles southwest of cape d'Argent, and is half a mile wide at the entrance, whence it trends W. $2\frac{1}{2}$ miles, with an average breadth of two-thirds of a mile. On the north shore is a little cove where small vessels can moor head and stern in 16 fathoms, or in a narrow arm west of the cove in 16 to 21 fathoms. The water is too deep for anchorage in the rest of the harbor. The entrance must be taken with a fair wind, as the squalls from westerly winds sweep in all directions from the high surrounding land.

The coast trends SSW. $\frac{1}{2}$ W. from Fourché harbor, and consists of high rugged land, red in color.

Robineau coves lie 3 and $3\frac{3}{4}$ miles respectively from Fourché harbor and afford no shelter. North of the eastern cove is a high peaked cliff that may be distinguished from some distance. From these coves the land becomes barren and gray for a mile to a small cove, the south point of which is a remarkable cliff. From that point the coast is much lower to Little Orange bay, an open cove, whence the coast is of moderate height and wooded to the sea.

Orange bay or Great harbor deep is a little more than 10 miles from Fourché harbor. The entrance is a mile wide between a wooded round hill on the north side, and a moderately high point on the south. The bay runs WNW. 2 miles, and then forms two branches, Baie des Soufflets extending NW. 2 miles with one bend, and Pigeonnerie running WSW. $1\frac{1}{2}$ miles, then NW. by N. one mile, the latter reach being called Middle or Sault arm. The middle arm is completely barred by rocks, and the last bend of Baie des Soufflets is shoal.

Cat cove lies just within the north point of the entrance, and contains a fishing establishment but no shelter.

Jacques cove lies on the south shore a mile within the entrance and contains a fishing post, but in successive years the vessels were lost that moored there, and it is no longer used as an anchorage.

Anchorage can be had only in the arms, going as far up as the water will permit, in 16 fathoms, black mud. The entrance is difficult to pass with westerly winds.

The coast from Orange bay is high, steep, and wooded. A cascade falls from a ravine between two peaked cliffs, 3 miles from Orange bay.

Union cove (Petites Vaches), $6\frac{3}{4}$ miles from Orange bay, is entered between Devil point on the north side, a peninsula lower than the rest of the coast with a little green at the summit, and a high wooded point to the southward, off which are two islets. This cove is little more than a mile deep and a third of a mile wide, is open to east, but little sea comes in with any wind. Vessels can anchor in 13 to 16 fathoms near the head, but the space is very small.

Little harbor deep (Grandes Vaches) immediately south of Union cove, runs in NW. $1\frac{1}{2}$ miles and then SW. by W. for the same distance. The first reach affords no shelter, and the second is shoal from the mouth.

Little harbor deep head, the south point, is high and barren.

White bay is entered between Little harbor deep head and Partridge point ESE. 15 miles, and extends SW. by S. 45 miles, diminishing in width gradually to the head. The coast generally is high and wooded, falling in steep slopes to the sea.

The numerous bays and inlets of White bay are as a rule very deep, until near the head, when they shoal rapidly.

Little Cat arm, 6 miles from Little harbor deep, runs in westerly with one bend $1\frac{1}{2}$ miles. The north point is rugged with small cliffs. The south point is also rugged, and both are wooded.

Fair anchorage may be had near the head in good holding ground.

Great Cat arm, $1\frac{1}{2}$ miles from Little Cat arm, is nearly two-thirds of a mile wide at the entrance between two cliffy points. A large slab of gray rock shows in the woods half way up the south point, that is continued under water by a chain of rocks, and should not be approached within 300 yards. The arm extends WNW. $1\frac{1}{2}$ miles, then SW. $1\frac{1}{2}$ miles, and finally W. one mile. There is no danger in the arm, but the coasts are high and winds blow from them in all directions, rendering navigation under sail very difficult. There is shelter as soon as the first elbow is passed, but the water is very deep, and it is necessary to go beyond the second bend to anchor in 16 fathoms.

The southern entrance point of this arm is quite bare of trees and shows as gray rock.

Cat head, south of this harbor, is high, sheltering a small cove south of it, on the southwest side of which is a remarkable high wooded hill that slopes west to a deep valley.

Rocks lie close to the coast at 5 miles from Cat head, and at 3 miles from the deep valley the coast lowers, and is bordered by a beach of white stones.

Devil cove, open to the eastward, is $7\frac{1}{2}$ miles from Great Cat arm. A stream falls into the head over some high hills.

Little Coney arm, at the north side of the entrance to Great Coney arm, is barred at the middle and affords no shelter. Boats can cross to the basin at the head in 3 feet at low w : 1

Great Coney arm is formed by a high bluff promontory, running parallel to the general direction of White bay, the north extreme of which, Coney arm head, is high, rugged and wooded, and easy of recognition from any direction. The arm is $2\frac{1}{2}$ miles deep, $\frac{3}{4}$ of a mile wide at the entrance, and diminishes gradually to the salt water pond at the head. The west shore is of bare cliff and steep-to, ending in a shallow cove, but the east shore is fringed by boulder beaches divided by perpendicular cliffs. Anchorage may be had at the head, but wind and sea reach in with NE. winds.

Frenchman cove, 4 miles from Coney arm head, is a mile deep open to E. and affords no shelter except from off shore winds. A small rock lies near the north point, and a high wooded hill over the south point.

Jackson arm is a good harbor situated a little less than 2 miles from Frenchman cove. The north point is a little, round, burnt hill, the rest of the land around it is high. The entrance is 575 yards wide and steep-to; immediately within, the harbor expands to half a mile in diameter, on the north side of which are two small coves with fishing posts. West of this basin the harbor narrows to 300 yards trending a little more than half a mile to a second narrows, 150 yards wide, expanding finally in a basin 600 yards in diameter.

From the south shore of the first narrows, a chain of rocks and shoal water extends 225 yards, but the north shore is bold-to. There is no other danger at a moderate distance from the shore.

Anchorage may be found beyond the first narrows in 12 fathoms, mud, or in the same depth beyond the second narrows, but the anchor should not be let go in the basin just within the entrance, as the bottom is uneven and the holding ground bad.

Wood.—This harbor is said to contain the finest wood in White bay.

Tides.—It is high water, full and change, in Jackson arm at 6h. 45m.

A small cove lies southwest of this harbor, off which are some rocks above water.

Sops island, 3 miles from Jackson arm, is $3\frac{1}{2}$ miles long and a mile broad. Between it and the main are several rocks and Goat island, leaving only a narrow passage. At the northeast extreme is a small cove where schooners moor, and near the west end is Woody islet, joined by a bank, over which there is 10 feet at low water.

The only passage west of Sops island is close to the north shore of the island, then between Goat and Woody islands, where not less than 7 fathoms will be found in mid-channel.

Caution.—In coming from the westward, vessels should be careful not to take the passage between Woody and Sops islands, for the former is hidden under Goat island and the passage looks clear.

Sops arm runs in SW. 3 miles from the west extreme of Sops island; Salmon cove at the head, within two small islets close to the south shore, affords good anchorage off a river with a fishery establishment near it. The mouth of the river is foul a short distance from the shore, but the rest of the coast is bold-to. There is no anchorage off the river on the northern shore of this arm, but the local fishermen report the existence of an anchorage about two miles west of the river.

A deep open cove, with several barren rugged islets joined to the east point, lies east of Salmon cove.

Spear point, the south turning point into Sops arm, is $1\frac{1}{2}$ miles from Sops island, tolerably low and faced by red colored cliffs. Opposite this point the breadth of White bay is 4 miles.

Salt-water pond is at the head of a cove $1\frac{1}{2}$ miles from Spear point, the entrance of which is remarkable. From this cove the coast runs nearly straight $8\frac{1}{2}$ miles to the head of White bay.

Miller island (Ile aux Cerises) lies in the basin at the head of the bay, is shaped like a truncated cone when seen from the north, but the south part is much lower, and a reef, with a sunken rock at the east extreme, extends some distance from it. The summit is 130 feet above high water.

Anchorage may be had off the west part of Miller island in 22 fathoms, but the water is too deep on the east side.

Gold cove, on the north side of the head, is surrounded by verdure.

Anchorage.—The anchorage in Gold cove is very deep. Vessels should steer for the center of the cove until a white house on the south shore appears nearly in line with the east entrance point, bearing NE. by E., when anchorage can be obtained in 25 fathoms.

River head.—A shoal, which is steep-to, extends off River head, the soundings increasing in depth from 1 fathom to 25 fathoms in about 30 yards. No anchorage can be had off River head.

The coast from River-head runs NE. by N. 14 miles to Purbeck cove, and is very high, wooded, and nearly straight. Chouse brook, 3 miles from the head, has a fishing establishment.

Granby island lies nearly a mile off the east shore 11 miles from the head. Two rocky islets lie at the south end, an islet at the north end,

and a bank with not more than 10 feet water extends about 400 yards SE. by S.

Pomley cove is a small cove behind a pyramidal rock SE. by S. of Granby island and about a mile southwest of Purbeck cove. There is a fishing post here.

Purbeck cove contains a fishing establishment and shelter from off-shore winds. It may be distinguished by the south point that is white in color, and a white patch in the cliff near.

Anchorage can be obtained in this cove in 11 fathoms water, with the church bearing NE. $\frac{3}{4}$ E. and the extreme of the peninsula bearing N. This anchorage is exposed to winds from N. to SW.

A small peninsula is situated $2\frac{1}{2}$ miles north of Purbeck cove, on the southeast side of which is a small cove with fishing posts. Between this and Purbeck cove are two rocks above water.

Wiseman cove, north of this peninsula, has a stream at the head and a rock in the middle. In it is a fishing establishment that can be seen when northwest of the entrance to the cove.

Western or Hauling arm, $5\frac{1}{2}$ miles from Purbeck cove, is a good harbor with the entrance free from danger. It extends E. by S. $3\frac{1}{2}$ miles, but there is no anchorage till $1\frac{1}{2}$ miles from the entrance, behind a point on the south shore in 11 to 16 fathoms, mud.

On each side of the arm just within the entrance is a deep cove. Wild cove to the south is deeper, but it is exposed and the holding ground is bad; Bear cove, on the north, affords fair anchorage for small vessels off the fishing establishments, sheltered by an islet, with a passage in on either side. The northern passage is the best, and if taking the southern, the islet must be given a good berth. Hauling point, north of this arm, is tolerably high, wooded, and the north extreme is remarkably white. From the northward this point makes as a peninsula sloping to Bear cove.

Pigeon islands consist of two large and one small islet. The northern is the largest, and the middle only a small rock, with no passage between them and the main. The water is deep south of the northern islet.

Within these islands is a little cove with a fishing establishment.

Middle arm (Faux havre) is 4 miles from Pigeon islands. The entrance is completely barred by rocks, so that boats alone can enter. Off the west point is a rock islet.

Southern or Seal arm (bras des Veaux marins) is an excellent harbor 2 miles NE. from Middle arm. The entrance is free from danger. Cheese hill, a remarkable round hummock, lies on the north shore of this bay near the head of the harbor. The anchorage is in 18 fathoms,

in a cove southwest of that hill. Shoal water extends from the foot of the hill to the opposite shore, barring the passage to the head.

Seal cove, immediately north of Southern arm, is open to west, and affords no anchorage. There is a fishing post on the shore.

Lobster harbor is a small round basin about 250 yards in diameter. The entrance is difficult to distinguish, and is nearly closed by a chain of islets outside. The passage is along the south shore, and is only 30 yards wide abreast the islands, and contains 8 feet water, but in the harbor there are 13 fathoms. The fishing establishments are on the north shore, on the isthmus of a small peninsula. The coasts are steep round the harbor, except at the head, where some gardens are situated.

Burnt cove, half a mile from Lobster harbor, is a sandy cove said to contain good anchorage in 13 fathoms, sand, good holding ground. The fishermen report that the sea does not reach in here, a fact corroborated by the grass which grows to the water's edge.

This cove (locally known as Wild cove) can be distinguished by a conspicuous white house at the head.

Current.—The current runs in along the west shore and out along the east shore of White bay, attaining sometimes a velocity of $1\frac{1}{2}$ knots.

Partridge point (cap Daim) is tolerably high, sloping gently to the sea, where it is bare and yellowish. Close southeast of it is a large open cove with cliffy shores.

St. Barbe or Horse islands are two in number, E. by N. 10 miles nearly from Partridge point, of moderate height and flat. The western and smaller is 3 miles long and a mile wide, steep to all round with whitish cliffs.

The passage between the island is a little more than a mile wide and free from danger.

The east island is $4\frac{1}{2}$ miles long and $1\frac{1}{2}$ miles broad. Close to the west coast, in the channel between the islands, are two low rocks steep to. An islet lies close to the north point, and an isolated rock E. by N. from the north extreme and a mile off the coast. The south shore of the island is foul, and should be approached with great caution. Two small boat coves lie west of the south point, and a shoal lies 300 yards off the eastern of these coves.

Cape Crapaud, SE. $\frac{1}{2}$ E. 3 miles from Partridge point, is steep to, and on the east side are patches of white marble.

Pigeon island, SSE. $\frac{1}{4}$ E. a little more than $1\frac{1}{2}$ miles from cape Crapaud, is close to Paradise point, a remarkable high point. Between these points is the entrance of a bay, the shores of which are steep to, except off a cascade just west of Paradise point, where a rock lies 70 yards from the shore.

Fleur-de-Lis harbor is situated at the west end of this bay, and though small has good anchorage in it, secure from all winds.

The entrance is difficult to distinguish except from southeast, when it will be pointed out by the remarkable mountain having three summits, resembling the top of a Fleur-de-Lis, from which both it and the harbor derive the name. Bring the mountain to bear W. $\frac{1}{2}$ N. and steer for it to the entrance; then keep along the east shore, steering for the second fishing establishment on that shore and east of Welch point, a little cliff with some huts on it, to clear the rock that lies in mid-channel about half way between the first two fishing posts; then when Bear hill (a mound 144 feet high west of the anchorage) comes open north of the islet, steer for Welch point to get in the middle of the narrows and avoid the bank stretching off the islet, where the summit of Fleur-de-Lis mountain will be seen a little to the right of Bear hill, and this will lead into the basin, in the center of which vessels can anchor in $4\frac{3}{4}$ fathoms, stiff mud. The arm running southwest from the anchorage is shallow. The strongest winds are those from NW. and north, that come down in violent squalls. There is never any sea at the anchorage, but after strong breezes from N. around by east to S.E. the sea breaks with fury on the outer coast, while the foam stretches across the entrance, looking like breakers, and a heavy swell is felt as far as the islet. This phenomenon has been observed to follow a northerly gale at an interval of a day after the wind had completely fallen, when the sea rose in an hour.

Temporary anchorage in fine weather may be had in 12 fathoms, coral, E. by S. $\frac{1}{4}$ of a mile from Starboard point.

Water can only be obtained conveniently from the cascade just west of Partridge point.

Tides.—It is high water, full and change, at Fleur-de-Lis harbor at 7h. 15m.

Green point, S. by E. 2 miles from Pigeon island, is the south extreme of a rugged indented coast, off which lies an islet. It is the north point of the entrance to bay Verte, $3\frac{1}{2}$ miles wide.

Bank.—A bank, with from $10\frac{1}{2}$ to $18\frac{1}{2}$ fathoms water, lies off Green point, and the southern edge bears from it N. 30° E. about one mile distant.

The Sisters are two rocks nearly half way across the entrance to bay Verte. The northern SE. by E. $\frac{1}{2}$ E. $1\frac{1}{4}$ miles from Green point, has 5 feet on it at low water, and the sea generally breaks on it. The southern is always uncovered, lies SE. $\frac{1}{2}$ S. $\frac{3}{8}$ of a mile from the northern, is surrounded by deep water, and the sea breaks on it continuously. The passages on each side and between the Sisters are clear.

Coachman harbor (Havre du Pot d'Étain) is comprised between Green point and French island SW. $\frac{3}{4}$ S. $1\frac{1}{2}$ miles, and is three-quarters

of a mile deep from French island. Tin-pot islands lie E. by S. of French island about 800 yards, and consist of two groups 400 yards distant from each other, with deep water all round, leaving clear passages between the two groups and the inner group and the main. The north shore of the harbor is clear for nearly a mile from Green point, where shoals with 10 feet least water stretch off 350 yards. The head of the harbor consists of North and South coves, separated by a point close off which lies Guibert islet. North rock is a shoal with 3 feet water, on a ledge extending 350 yards from the east point of North cove.

The south shore of South cove is formed by a narrow peninsula surmounted by a little wooded hill, with a fishing establishment at the isthmus.

Gentile islet lies off the north side of the peninsula. It is small and is continued 200 yards to the northwest in shoal water, and shoals lie off the channel separating French island from the peninsula.

Anchorage may be had in South cove, which is 400 yards in diameter, in 5 fathoms, sand, with good shelter.

Easterly winds bring a sea into North cove.

Tides.—It is high water, full and change, at Coachman harbor at 7h. 16m.

Bay Verte or Little bay runs in SW. by S. $9\frac{1}{4}$ miles from Coachman harbor with an average breadth of a mile. The shores are high, steep-to, and wooded nearly throughout. In the middle of the bay $3\frac{1}{2}$ miles from Coachman harbor is a yellow-colored islet with a little grass on the summit and steep-to. Another islet lies a mile farther west, wooded, and near the west shore. On this islet small seams of copper have been found, and also in the stream at the head. The bay dries from the head nearly a mile and shoals suddenly, so that vessels should advance cautiously, sounding within 2 miles of the head.

Anchorage.—Good anchorage in 7 fathoms, stiff black mud, and excellent holding ground will be found at the head, off a hut a little west of a low rocky point on the north shore.

This is a fine place of refuge in easterly gales, and vessels can leave easily with easterly winds. The sea breaks as far as the wooded islet during northerly and easterly gales.

A low rocky islet is situated on the south shore, $1\frac{1}{2}$ miles from the south point, that is completely bare.

A sunken danger about 10 yards in diameter lies 350 yards off the northeast point of Duck islet (the western of the two islets situated in the middle of this bay). There is a depth of 9 feet on this rock, with 2 and 3 fathoms close-to and 24 fathoms between it and Duck islet.

From the rock the east extreme of Outer Tin-pot island open west of the yellow islet in the center of the bay, bears N. 36° E., and the north extreme of Duck islet bears N. 45° W.

Clearing mark.—The center of Inner Tin-pot island in line with the west extreme of the yellow islet leads south of this danger.

Vessels when entering Bay Verte should not pass between Duck islet and the yellow islet, but, having passed south of the latter, keep on the southern shore of the bay until past Duck islet, when the course may be shaped in mid-channel.

Ming's bight (Baie des Pins), situated east of Bay Verte, is a little more than 4 miles long and $1\frac{1}{2}$ miles wide. Mings islets, two reddish rocks, lie near the west point of this bight and are steep-to. Pines islet, a low rock sheltering a creek fit for boats, lies close to the east point of this bight, called Grappling point; on this islet and near the creek are fishing posts. The only dangers in this bay lie off a low point on the southeast shore, sloping from a barren hill about half way between Pines islet and the head. This point should not be approached within 400 yards.

Anchorage is not to be had till near the head, where the anchor should be let go in 27 fathoms, so that the stern of the vessel when swung should be abreast a conspicuous square boulder just west of the second stream on the north shore.

The copper mine in this bight is situated on the western side, at about two miles within the entrance; the water in Mings bight is so deep that at about 50 feet from the shore there is a depth of 5 fathoms.

Grappling point is high, cliffy, and steep-to, and the coast continues so to the entrance of Paquet harbor.

Hardy harbor, about 4 miles from Grappling point, is a boat creek sheltered by Bois island, barren and near the coast. The entrance is difficult and dangerous with on-shore winds.

Paquet harbor may be recognized easily by cape Brûlé, the south point of the entrance, surmounted by a high round hill 577 feet high, with steep flanks, and by Calvary hill 269 feet high, on the north side of the harbor. Pelée point, north of the entrance, is a peninsula of moderate height, at the extreme of which are several rocky islets with boat passages between. A shoal, with $3\frac{1}{2}$ fathoms, lies SE. by S. 150 yards from the point. The entrance is 550 yards wide, whence the harbor runs WNW. and separates in two arms, North arm containing fishing establishments, and Paris bay, running southwest $1\frac{1}{4}$ miles.

La Baleine, a rock with 9 feet water, lies nearly half way up the North arm, and in mid-channel, being connected by a shoal ledge to the west shore. Cape Brûlé, in line with Soup point (the west extreme of the north point of the arm), leads just east of this rock, and the first fishing stage in, open south of the left fall of Calvary hill, leads north of the shoal.

Anchorage may be had at the head in 8 to 10 fathoms, fair holding ground, but vessels wishing to stay require heavy anchors and a long scope of cable.

Paris bay is clear of danger till within 300 yards of the head, but is only 200 yards broad at the narrows, expanding to a basin 400 yards in diameter at the head.

Anchorage may be had for small vessels in 5 fathoms, mud. The holding ground is not good till Pelée point is shut in with Broussailles point, the south point of the entrance to Paris bay. North and west winds produce violent squalls in this harbor, that strain the chains of vessels at anchor, and make beating in sometimes impossible.

Water may be obtained from a fine waterfall in North arm, or from a stream, well stocked with fish, at the head of Paris bay.

Tides.—It is high water, full and change, at Paquet harbor at 6h. 49m.

The coast trends southeasterly from Paquet harbor nearly a mile to Cania point, off which is a reef and ledge extending 400 yards, with a deep passage close to the point. A cove is situated a mile south of Cania point, it is deep and exposed; the east point, Cape Cagnet, being white and prolonged by low rocks, forms the north point of Confusion bay.

Confusion bay is nearly 3 miles wide between Cape Cagnet and Brents cove head, and forms two bights at the head.

Grand cove, 2 miles from Cape Cagnet, is the western, and is open to the northeastward. The sides are inaccessible, and boats avoid being caught there with on-shore winds.

Round harbor (Grand coup de Hache) is the eastern, 3 miles nearly from Brents cove head. This harbor is safe but small, and it should not be taken without a pilot.

To enter: a rock southeast of the stream on the south shore must be brought in line with Gully point, east of the entrance, to avoid two banks off that point to the northwestward until the second bank is passed, when the center of the Gully must be steered for, to avoid a third shoal near the entrance. Passing through the Gully, haul to the eastward, and pass between a flat rock and a reef opposite the entrance. Round the flat rock, and anchor in southeast cove in 5 fathoms.

Brents cove (Petit Coup de Hache) is east of Round harbor, being separated from it by Coup de Hache point, a high, steep, round hill sloping to a white point.

Brents cove head is high, steep, and of a dull color. A reef lies a short distance off the shore northeast of the head, with a boat passage

between. Cape Canaille, a high, bold point, is situated $2\frac{1}{2}$ miles to the eastward of Brents cove head.

La Scie harbor, $1\frac{1}{2}$ miles from Cape Canaille, is easy to recognize from the red, rugged appearance of Lachesnais point, east of the entrance. This small harbor is easy of access, but is not recommended, being much exposed to northwesterly winds that throw in a heavy sea. The harbor runs up about a mile and is 200 yards wide, but the water is shallow 800 yards from the head.

The best holding ground is just within a small cove on the west shore, in 15 fathoms, mud.

The coast is moderately high, steep, and somewhat red in color east of La Scie harbor, 4 miles to North bill, thence trends sharply to the southward $1\frac{1}{2}$ miles to Middle bill.

Cape St. John.—The northwest point of Notre-Dame bay is divided into three principal points, named North, Middle, and South bills. The two former are terminated by remarkable peaked rocks, and South bill falls steeply from cliffs 244 feet high.

Gull island lies ENE., distant $4\frac{1}{2}$ miles from South bill. It falls steeply in rocky cliffs, with shingle débris on the south shore, and is steep-to on all but the eastern side, a short distance from which are two rocks. The island is 1,200 yards long, 600 yards broad, and has two summits, separated by a deep valley. The western summit is flat and 462 feet high, the eastern is a sharp peak about 300 feet above high water. Small, stunted brush-wood grows in some of the hollows of the western part of the island, and in ordinary seasons a small pond is formed near the western summit. A small indentation on the south shore, at the bottom of the valley between the two hills, affords the best landing, and two houses have been built there to shelter sealers. Queen gulch, a deep cleft in the east shore, is so named from a vessel of that name which was wrecked there, the crew dying afterward from starvation on the island.

Mother Burke rock, a pinnacle 334 feet high, is joined to the mainland at a quarter of a mile south of South bill; it shows conspicuously from the line of coast and is steep-to.

The recognized line of demarkation between the French and English fisheries is from the summit of the pyramidal rock at Cape St. John to the summit of Gull island.

Currents are very strong in this neighborhood, and generally run to the southeastward.

CHAPTER VII.

NEWFOUNDLAND, EAST COAST.—CAPE ST. JOHN TO CAPE BONAVISTA.

Notre-Dame or Green bay, as it is now generally named, is 45 miles wide between Cape St. John and Fogo island and 20 miles deep. The coast at the head is divided into many arms by numerous islands, among many of which it is not safe to navigate without a pilot.

Manful bight, a rugged cove, into the head of which a stream falls, is situated $1\frac{1}{2}$ miles south of South bill. Briney cove, known by a small shingle beach in the northeast part of the bight, is the station of the guard for the fisheries.

Manful head, situated south of the bight, is a bare cone 360 feet high, eastward of which, at 200 yards' distance, lies a rock with 9 feet water on it.

Bishop rock, 30 feet high, lies SE. by E. $\frac{1}{2}$ E., distant $1\frac{1}{2}$ miles from Manful head. It is small and bare, with a ledge of rocks extending a short distance from the west side, but is otherwise steep-to.

Shoal rock, with $3\frac{1}{2}$ fathoms water on it, lies W., distant 1,400 yards from Bishop rock. The passage is clear on either side of this rock.

Mad rock, 10 feet high and bare, is situated SW., distant 1,600 yards from Manful head. A rock awash lies a short distance west of Mad rock, and a shoal with $6\frac{1}{2}$ fathoms water over it is situated SW. $\frac{3}{4}$ S., distant 330 yards from it. Mad rock cove, northwest of the rock, has some rocks in it close to the head.

Coast.—The coast from Mad rock cove to Shoe cove point falls in steep cliffs from hills that attain an elevation of 700 feet, and is steep-to.

Shoe cove is an open bight half a mile wide and 400 yards deep, where a small settlement is situated. The shores are foul for 100 yards, and fall suddenly beyond that distance to 7 fathoms. Anchorage may be had in 14 to 11 fathoms with Shoe cove point bearing SE. $\frac{3}{4}$ E., and the school-house, a wooden building on a cliff in the middle of the cove, bearing NE. $\frac{1}{2}$ N., or farther in for small vessels, as convenient. The holding ground is good. Several land-slips mark the hills in this cove and show conspicuously from the southwestward.

The Brook is a small creek situated west of Shoe cove, into which a stream discharges from a large lake half a mile inland. A few houses and a church are built round the creek, but the latter is not visible from

seaward. A good path connects this place and Beaver cove, and is being extended to Tilt cove.

Monks ground, with 15 feet water over it, extends 267 yards east of a point situated 700 yards southwest of the Brook. Round harbor head seen open leads south of this shoal.

Shoe cove rock, with 8 feet water on it in two places, covers a space nearly 200 yards square, and within the depth of 10 fathoms is 600 yards long and 200 yards broad. The nearest part of the rock lies SW. by W. $\frac{1}{2}$ W., distant 930 yards from Shoe cove point. Bishop rock well open south of the mainland, and bearing NE. by E. $\frac{3}{4}$ E., leads south, and the summit of Round harbor head open of Caplin cove head, bearing SW. $\frac{3}{4}$ W., leads north of this rock and between it and Tilley ledge.

Long rocks, 16 feet high, lie close to the shore, three-quarters of a mile southwest of the Brook.

Tilley ledge, with $6\frac{1}{2}$ fathoms water on it, is situated E. by N., distant 700 yards from Long rocks, and 400 yards NW. by N. of Shoe cove rock.

Caplin cove rock, with $7\frac{1}{2}$ fathoms over it, lies 500 yards S. W. by W. of the latter.

Coast.—The shore from the Brook to the westward falls in steep cliffs from hills covered with moss, and terminates in rugged points. A high range, attaining an elevation of 537 feet, is separated by a small valley from the coast hills.

Little Caplin cove, 200 yards deep, lies 600 yards SW. by W. of Long rocks. A few houses are built at the head. Great Caplin cove is situated close southwest of Little Caplin cove, and has a shingle beach at the head and several peaked rocks close to the shore.

Caplin cove head falls in steep cliffs from a partially wooded eminence, with two small peaks 300 feet high, and terminates in a bare, sharp rock 38 feet high.

Beaver cove head, situated half a mile SW. by W. of Caplin cove head, falls steeply from a round hill 552 feet high, covered with an alternation of wood and moss, and is steep-to.

Beaver cove is an open bight that extends 1,200 yards west from Beaver cove head. At the head of the cove a considerable stream drains Beaver cove pond, forming a small cascade under a bridge. The west entrance point is foul for a short distance.

Beaver cove grounds, with $9\frac{1}{2}$ fathoms water over them, lie SE. $\frac{1}{2}$ E., distant 350 yards from the west entrance point of Beaver cove.

Tilt cove, the shipping place of one of the most valuable copper mines in Newfoundland, is situated 1,800 yards westward of Beaver

cove, and may be easily recognized by the magazine (a white building standing alone on the west entrance point of the cove) and by the eastern head, which is bare of wood. The north shore falls almost perpendicularly to the sea from a height of 494 feet, and has a fringe of bowlders that have fallen from the cliffs. The south shore is lower, and shoal water extends a few yards from the extreme southern point. The cove is 267 yards deep and about 400 feet wide. A pier has been built on the west side of the cove, which extends 186 feet from the shore, and has a depth of 28 feet at low water close to the outer extremity. The sea occasionally washes completely over this pier, but in ordinary summer weather vessels may lie alongside in perfect safety. An anchor should be let go in 9 fathoms at a convenient distance from the pier, and the vessel may be hauled into her berth by means of hawsers secured to large ring-bolts let into the sides of the cove for that purpose. A large settlement is situated round Windsor lake, a pond nearly half a mile long, that is drained into the cove by a small stream. A church is built on the east side of the lake, near the head. A chain of lakes extends some miles inland from Tilt cove.

Scrape point, half a mile southward of Tilt cove, is surmounted by a flat-topped hill, 595 feet high, covered with wood and faced by cliffs. A bank with 10 fathoms water over it extends 400 yards from the point.

Venams bight and **Balsam-bud cove** are the north and south coves of an open bay $1\frac{1}{6}$ miles deep and $1\frac{1}{2}$ miles wide lying between Scrape point and Round harbor head. Pigeon island, 41 feet high, separates these coves. The bay contains deep water and has no dangers in it except a ledge extending a short distance from Whellers rock, some bare islets 9 feet high situated on the south shore of the bight.

Round harbor head the south entrance point of this bay and the east point of the entrance to Snooks arm, is surmounted by a round wooded hill 258 feet high, by which it may be easily recognized. Low rocks extend 200 yards from the extreme of the head.

Round harbor is situated immediately west of Round harbor head, and is entered through a channel 40 yards wide between it and a smooth grassy mound 92 feet high. The harbor is 267 yards long, 150 yards wide, and is available for small schooners only. A sunken rock lies off the first fishing stage in, on the east side, another near the head, and a third just inside the west point of entrance. Only 3 fathoms water can be obtained in the harbor. A heavy sea occasionally makes the entrance almost impassable, but the harbor is always safe.

Snooks arm extends $2\frac{1}{2}$ miles W. by N. from Round harbor head, is $1\frac{1}{2}$ miles wide at the entrance between that head and Pigeon island and narrows gradually to the brook at the head. The north shore slopes from a range of hills 389 to 334 feet high, which are covered with moss, while the southwest shore falls precipitously from Snooks head, a flat promontory 628 feet high, with deep ravines intersecting it.

Long rocks, 3 feet high, lie off the north shore, 1,200 yards west of Round harbor, and Woody point is a low projection three-quarters of a mile farther in, on the same shore.

Woody point rock, with 4 feet water on it, lies south, distant 200 yards from Woody point, and is the only danger on the east shore. The west entrance point of Round harbor open off Long rocks and bearing E. $\frac{1}{2}$ N. leads south of Woody point rock.

Pigeon island, the west point of the entrance to Snooks arm, is separated only by a chasm from the extreme of Snooks head, and is steep-to.

Mad Moll rock dries 3 feet at low water. It is situated a quarter of a mile northwest of Pigeon island and 100 yards from the southwest shore of Snooks arm. This is the only danger off that shore, which, however, should not be approached nearer than 200 yards.

Anchorage.—The anchorage in Snooks arm is limited and available only for a few vessels, but the holding ground is good, in 16 fathoms water, off either of the two coves at the head.

Lower bill of Snooks head is the southern extreme of that head. A rock with 15 feet water on it lies 150 yards south of it.

Upper bill may be identified by a few low rocks lying close to the shore.

Wild bight, situated nearly a mile westward of Snooks arm, is 1,700 yards wide at the entrance, a mile deep, and 600 yards broad at the head. It is quite open, and has an even depth of 28 fathoms water, except close to the head, where it deepens.

Anchorage can therefore only be had by small fishing craft quite close to the cove, at the west side of the head. Some bowlders that dry at low water and a sunken rock lie in the southern cove, on the east shore; and the northern point, on the west shore, is composed of dark wedged-shaped rocks that are continued a short distance under water.

Mouse point, west of the entrance to Wild bight, slopes steeply from a wooded hill 509 feet high. A rock with 10 feet water on it lies 100 yards SE. by S. of the point.

The Harrys, a ledge of sunken rocks, extend 200 yards from the shore, at 1,300 yards W. by S. of Mouse point. Old Harry, the outer rock, has 9 feet on it at low water. Head rock, with $4\frac{1}{2}$ fathoms water over it, lies 267 yards south of the east head of Indian Burying-ground cove. Snooks head open south of Mouse point, bearing ENE., leads south; and the north extreme of the beach in Indian Burying-ground cove open west of the head, and bearing NNW., leads west of these rocks.

Indian Burying-ground cove, an open cove with a settlement round the shores, lies westward of the Harrys. A cascade discharges the waters of a brook that flows down the valley at the head. The cove is shallow, and the shoal water falls suddenly to a depth too great for anchorage.

Bobby cove is situated close west of Indian Burying-ground cove, the point of separation terminating in Bobby island, small, bare, and 33 feet high. Neither of these coves affords anchorage for large vessels.

Button-hole point, lying southwest of these coves, is sharp and narrow, terminating in a mound 50 feet high. A rock with 13 feet water on it lies 100 yards SE. by S. of the point. Hammer head seen open south of Betts head, and bearing WSW., leads close south of this rock.

Button-hole cove, a small indentation, with a store and wharf, lies close west of the point.

Betts island, 39 feet high, lies close to the shore, 1,267 yards westward of Button-hole point. It is round in shape, covered with turf, and steep-to.

Coast.—The coast between Mouse point and Indian Burying-ground cove falls in steep cliffs from a table-land covered with moss. A considerable landslip occurred in 1876, in a cove close west of the Harrys. At the head of Indian Burying-ground cove the hills slope gently to the brook, which runs into the cove; the east head falls in steep cliffs, and two conspicuous hills, faced by cliff, lie over the north shore. Between Bobby and Betts coves the land is much contorted, sharp-peaked hills, covered with wood, rise round deep valleys filled with ponds; the shore may be approached within a short distance.

Betts cove is entered half a mile west of Betts island. It is 667 yards wide at the entrance, narrows gradually to the head, and contains deep water till abreast the wharves, after which it shallows suddenly. A valuable copper mine, situated to the westward of the cove, has been worked since 1876, from which 45,000 tons of ore were shipped in 1877. A considerable settlement has sprung up in consequence; wharves line the south side of the inner portion of the cove, and others are in course of construction on the north side. The various buildings, smelting houses, &c., form conspicuous objects; a tramway connects the mine with the harbor.

A red buoy has been moored in 26 fathoms close SE. by S. of the wharves, to which vessels temporarily secure, and ring-bolts (the position of each of which is marked by a whitewashed mark) have been let into the sides of the cove to aid vessels in hauling to the wharves. The shores are steep-to, and fall almost perpendicularly from hills between 660 and 530 feet in height. A considerable stream flows from a pond into a rugged cove close within the east point of the entrance, from

which water may be readily obtained. The cove is open to the southward, but the heaviest swell rolls in during and after heavy NE. gales.

Three churches have been built in this cove: Episcopal, with a spire, on the road from the cove to the mine; Wesleyan, on the first plateau off the road, about 400 feet above the cove; and Roman Catholic, on a summit near the mine. The latter only is visible from seaward, from a NE. direction.

Betts head, situated 1,200 yards southwest of the entrance to the cove, terminates in an islet 10 feet above high water, under the slopes of a double-peaked hill 432 feet high. The islet is steep-to. From the double-peaked hill a range, with many small peaks, extends to Betts cove, falling to a comparative level on the west side, from which the hills rise again that form the coast range of Nippers harbor.

A small bare rock is nearly joined to the head, 67 yards east of the islet. Between them there is a small bight, where lighters could load ore in fine weather. A house is built close above this rock.

Coast.—The coast trends westward from Betts head and falls nearly perpendicularly to the sea. That immediately about Betts head is reddish in color, but west of Betts head it becomes dark gray and partially covered with trees. A water-fall runs into Betts bight from a pond inland.

Green point, a wooded projection 67 feet high, is situated 1,600 yards westward of Betts head, under hills 430 feet high. Two low rocks lie close to this point and are steep-to. A shoal is situated a short distance from the shore, at 600 yards westward of Green point.

Burtons pond discharges through a small stream, spanned by a bridge, 1,850 yards westward of Green point. The entrance may be readily distinguished by the gap in the hills as well as by the houses and a flag-staff. The mouth is barred by a beach of shingle 2 inches above high-water springs, and the level of the pond in September, 1879, was 11 inches above the same datum. The beach is 103 feet wide from high-water line to the fresh water of the pond. Burtons pond is 1,350 yards long, and a little more than 200 yards wide near the mouth, but narrows to 100 yards at a third of a mile within. The depth of water in it varies from 17 to $4\frac{1}{2}$ fathoms, and the bottom is of stiff mud. Round the pond the hills form an amphitheater, falling almost perpendicularly to the water's edge. At the head are two hills, composed of reddish rock; on the north side rises a dark wooded cone 424 feet high, and on the south side is an isolated peak 159 feet high, with a gap between it and the higher range inland. All the other hills are of grayish rock, about 430 feet high, and nearly covered with trees. Roads extend from the entrance to Betts cove and Nippers harbor. The beaches near the entrance to Burtons pond are foul 200 yards from the shore.

A mine has been in operation near the mouth of this pond for some years, but has been abandoned.

Candlemas head, a round hill 286 feet high, and detached from the main range by a deep valley, marks the west side of Burtons pond, and is steep-to. Pitman bight, 350 yards deep and 450 yards wide, is situated west of this head, but affords no shelter. There is a house and stage in the northeast corner. A hill similar to Candlemas head, 377 feet high, but with not so deep a valley between it and the next ridge inland, lies just over the east side of the entrance to Nippers harbor, which is entered 1,200 yards west of Candlemas head, and may be readily recognized by the islands to the southward and the houses.

Nippers islands are a group containing six principal islands and several rocks.

Gull island, the easternmost, lies SW. $\frac{3}{4}$ W., distant $1\frac{1}{2}$ miles from Betts head, and comprises a number of rocks joined together at low water. The eastern part is of white rock and 45 feet high, falling steeply to the east extreme; the middle part is round and covered with turf; and the most prominent object to the westward is a square mass of rock about 40 feet high, from which low rocks extend west 100 yards. Shoal water lies a short distance from these rocks.

A ledge with 5 fathoms water extends ENE. $\frac{1}{2}$ E. 400 yards from Gull island; and Gull island ground, a rocky bank, lies farther east, the shoalest spot, with 10 fathoms water, bearing E., distant 1,150 yards from Gull island.

Gull rock, dark gray in color and 12 feet above high water, is nearly connected with Gull island by shoal water, being only 67 yards west of it. Low rocks lie both east and west of Gull rock, but the water is deep beyond 100 yards from the southwest side.

Alexander rock, a light gray islet 22 feet high with turf at the summit, is situated 350 yards southwest of Gull rock, and a shoal with $3\frac{1}{2}$ fathoms water between them, at 100 yards from Alexander rock. Small detached rocks lie close to this islet on all sides.

In taking the channel between Alexander and Gull rocks a vessel should keep nearer the latter.

A reef that dries 2 feet lies a short distance west of Alexander rock. Gull island kept well open north of Alexander rock leads north of this reef.

Riding island is separated by a shallow channel from the south side of Alexander rock, and is formed of several conical masses of rock, joined together and to a round wooded hill 57 feet high at the west extreme.

Fox island is divided from Riding island by a passage sufficiently wide for a small boat at low water. It is surmounted by a round hill partly wooded, 75 feet high, and falls in steep cliffs to the southeastward.

Duck island is connected with the south extreme of Fox island at low water, and consists of a mound 44 feet high covered with grass, from which a ledge of bare rocks, with a small shoal off the extreme, extends to the southward.

Seal island, the largest of the Nipper islands, is 460 yards long, 200 yards wide, and 80 feet above high water. A channel a few yards wide, with a rock in it awash at low water, lies between Seal island and the west extreme of Duck island. The summit of the island is covered with small trees and grass, over whitish rock.

Rocks that cover lie about 20 yards off the west extreme, and a rock with 5 feet water bears southeast, distant 50 yards from the south extreme.

A shoal with $2\frac{1}{4}$ fathoms water, occupying a space 100 yards square, lies between Riding and Seal islands. Any part of Gull island seen open north of Alexander rock leads north of this shoal.

Green island, a round mound 90 feet high, covered with small trees, is situated 250 yards northward of Seal island. A small rock with a shoal in continuation lies close to both its east and west extremities, and shoal water fringes the south shore a few yards distant.

Nippers harbor.—Harbor point, east of the entrance to Nippers harbor, falls steeply from the hill before described, and terminates in a bare rock 6 feet above high water, off which lies a sunken rock with 2 feet water, that generally breaks.

The house with a red roof in the northeast corner of the harbor seen open, bearing NNW. $\frac{1}{2}$ W., leads west of this rock. High hills line the north side of the harbor, but on the south side the foreground consists of low reddish hillocks backed by high hills, conspicuous among which is Black lookout, a dark cone 690 feet high, and three-quarters of a mile west of the head of the harbor.

The harbor consists of three parts; the southern, rectangular, a quarter of a mile long and 250 yards wide, affords anchorage for moderate-sized vessels in $12\frac{1}{2}$ to 10 fathoms, mud. The shores are bold with the exception of the rock off Harbor point, and another close to the west point of the entrance. Ring-bolts have been let into the rocks for convenience in mooring. The northwestern part has shoal water extending from a brook in the northwest corner, leaving an anchorage with good shelter for small vessels, 100 yards in diameter, with 6 fathoms water in it. The northeastern part of Nippers harbor dries across the mouth at low water, but is deep within the bar.

The northwest and north arms are divided by an island, connected at low water with the east side of the harbor. The passage is at the west extreme, about 150 feet wide, and with $3\frac{1}{2}$ fathoms in mid-channel. A rock with 6 feet water lies close off the island, just within the passage. A small village, with a church, is built on the shores of the

southern part of Nippers harbor, and a Wesleyan chapel, with a wooden pinnacle at the west extreme, and painted yellow, stands on a hill above the west entrance point of the harbor.

Noble head, 800 yards south of the entrance to Nippers harbor, is a promontory of dark gray rock, with a flat summit 215 feet high, covered with grass, and two remarkable pinnacle rocks near the east extreme. It falls in rugged cliffs and is foul round the base from the accumulated débris. Low rocks lie off the east extreme, two being close to the shore and two others at 100 yards from it. The easternmost is one foot above high water, and the next inshore dries at low water. There is deep water at 100 yards from the eastern rock.

Noble cove contains some white houses, built close inshore of a beach north of Noble head. The cove is fringed by rocks, is entirely open to easterly winds, and is unfit for anchorage. There is a depth of 4 to 6 fathoms at 150 yards from the beach, increasing quickly to 15 and 26 fathoms.

A bank, 400 yards long and 150 yards broad within the depth of 10 fathoms, lies east of Noble head, and contains three shoals with 11 feet and 3 and 3½ fathoms, respectively. The rock with 11 feet water bears ENE. ¼ E., distant 400 yards from Noble head and 350 yards from Green island. Hammer head well open south of the rocks off Noble head, bearing SW. by W. ½ W., leads south; the west extremes of Seal and Green islands in line, bearing S. by E. ¼ E., leads well to the eastward; and the beach in Noble cove seen open north of Noble head, bearing W. ¼ N., just clears the north side of this bank.

The south shore of Noble head is 800 yards long, and terminates in a small islet 32 feet high, on each side of which is a beach of shingle.

The coast then curves to the southwestward under Big Red head, a steep red cliff with a flat top, 603 feet above high water. The shore is bold and the water too deep for anchorage. West of this head the coast is bordered by low rocks, and vessels should not approach nearer to it than 200 yards, nor enter the cove east of Green head.

Green head, a wooded, flat-topped hill 278 feet high, forms the north point of the entrance to Rogues harbor, and falls in terraces to the sea. A small islet is joined to the northeast extreme, and the southern part of the head is steep-to. A low isthmus that has been partially cultivated, with a beach of shingle on each side, joins this head to the mainland.

Rogues harbor, nearly 2 miles westward of Noble head, is the southern of two arms of the sea which unite just inside the entrance, the dividing point being Hammer head, a remarkable bluff hill 559 feet high, with a conspicuous patch of red rock at the base.

A shoal, having two heads with 5 feet water on them, lies in the middle of the entrance, and a rock with 15 feet lies close northwest of

this shoal. There is a depth of $7\frac{1}{2}$ fathoms between these rocks and Green head, but the best channel is west of them, with 17 fathoms water. The shingle beach at the head of Northwest arm shut in with the point south of it, bearing NW. $\frac{1}{4}$ W., leads west; Nippers islands seen completely open of Green head, bearing NE. by E. $\frac{1}{4}$ E., leads south; and the bluff at the head of Rogues harbor open of the bluff projection on the south shore, bearing SW. by W. $\frac{1}{4}$ W., leads north of the shoal.

Northwest arm is 800 yards long and 300 yards wide. A shingle beach forms the head, and a water-fall runs into the arm just east of the beach, over a cliff about 100 feet high. The cliffs immediately north of the neck joining Green head to the mainland have a reddish tinge, but are not nearly so brightly colored as those under Hammer head. A small islet lies close south of the beach at the head, and the west point of the entrance is formed by a small gray peninsula, 25 feet high, close under Hammer head.

A shoal with 13 feet water lies 50 yards east of this peninsula, and a bank with $5\frac{1}{4}$ fathoms water is distant 100 yards from the opposite shore.

There is no anchorage for large vessels in this arm, but small schooners may find shelter, off the shingle beach at the head, in 7 fathoms.

Rogues harbor extends 1,700 yards from West point and is 500 yards wide at the entrance, but at 800 yards within is contracted by a projecting peninsula, 78 feet high, faced by rugged cliffs and terminating in ragged points. The channel here is only 70 yards wide, and no greater depth can be carried through than 7 feet at low water; but within this bar is a basin 650 yards long and 200 yards broad, with 13 fathoms water in the middle, decreasing gradually in depth to the head. Vessels which can enter should avoid anchoring off the cove in the east corner, as very heavy squalls sweep over the neck of the peninsula during NE. winds. A water-fall runs into the north side of the harbor from an inland pond.

A copper mine is being opened up at the head of this harbor. Shoals extend east 200 yards from the peninsula forming the narrows.

The hills northward of Rogues harbor are generally bare, the slopes near the harbor are wooded, while inland, moss and a few trees only cover the bare rock. Westward from the harbor the hills are more wooded, and at $1\frac{1}{4}$ miles from the coast is a flat range, bare at the summit but densely wooded on the sides, and terminating to the westward in a round bluff 915 feet high, the highest part of the range. Between this and the coast hills is a valley filled with many small ponds, and through which passes the telegraph wire to Tilt cove.

A mile inland from this range is a bare stony ridge, with small peaks and boulders scattered along the top, the highest part being 1,130 feet above high water.

A ridge, nearly flat and about 265 feet high, forms the south side of Rogues harbor and the east side of Stocking harbor, where its western part receives the name Flour-cask head. This ridge is separated from the next range inland by a valley only a few feet above the sea, in which is a large pond. The ridge slopes steeply to seaward and has only one beach, known as Wild cove, situated on the outer coast, 1,400 yards from Rogues harbor. A remarkable white patch in the cliffs is situated 267 yards west of Wild cove.

Stocking harbor, 2 miles southwest of Rogues harbor, is, like the latter, available for small vessels only. It is entered between Flour-cask head and Burnt island, a dark bare island 350 yards long and 56 feet high, with white patches interspersed among the dark rock. This channel is 550 yards wide and free from danger. The harbor then expands into a bay half a mile square, with 21 to 25 fathoms water in it, over coral bottom, close to the shores, and no anchorage. Steep cliffs line the north side of this bay.

East Stocking harbor, an inlet 500 yards deep and 133 yards wide, is the best place of refuge for small vessels, which can anchor as convenient in 10 fathoms water at the entrance, the depth decreasing gradually to the head.

A rock lies about 40 yards off the south entrance point, close within the entrance.

Salt pond, the western arm, is 1,300 yards long, 300 yards wide at the entrance, diminishing in width to the westward, and is almost filled with rocks. One or two small schooners may anchor inside the rock that dries in the entrance, but a swell rolls in with easterly gales, and the whole arm is foul. The passage in lies close south of this rock.

The southern part of the entrance to Stocking harbor is formed by Burnt, Pigeon, and King islands. Burnt island is bold till within 100 yards of the east side.

A shoal with 5 fathoms water bears E. by S. a little more than 200 yards from Burnt island.

Pigeon island is separated from the west side of Burnt island by a clear channel 250 yards wide, with 13 fathoms water in it. This island is small, wooded, and about 40 feet high.

King island is situated close west of Pigeon island, the passage between being available for boats only; the island is only disconnected from the mainland at high water. It is composed of reddish-gray rock, nearly covered with trees, and is about 70 feet high, with small cliffs to the southward. Shiner point, a flat projection, is the north extreme, and shelters a good cove for boats. Some houses are built on this point and in East Stocking harbor.

John Smith island is situated 300 yards westward of King island and about 400 yards from the mainland. It is 41 feet high, of reddish rock, and terminates to the southward in a low reef, which is steep-to. A shoal with 10 feet water lies midway between the south extreme of this reef and a small islet off the west point of King island.

Smith rock is a dangerous shoal having two heads, the southern with 8 feet water, and the northern 100 yards northeast from the southern, with 15 feet water. The shoaler bears SE. by S. distant 467 yards from John Smith island, and SW. by W. $\frac{1}{2}$ W. 1,600 yards from the south extreme of Burnt island. Seal island (Nippers island) open south of the mainland, bearing NE. by E. $\frac{1}{4}$ E. leads 100 yards south of Smith rock.

John Smith harbor extends 400 yards northwest from John Smith island and is 150 yards wide at the entrance, decreasing gradually in width to the head. There is good shelter in this harbor for fishing craft and small schooners in 12 to 9 feet.

Coast.—The coast west of John Smith harbor is bordered by rocks that cover at high water, and small islets, for 400 yards, to Rowland point. The outer rock is always above water and is steep to the southward. The west extreme of King island shut in with the west extreme of John Smith island will lead south of it.

From this the coast trends west for a distance of 1,800 yards to the entrance of Northwest arm; it is bold-to, and consists of grayish rock covered by wood.

Green bay is a long arm of the sea lying between Stocking harbor and Green bay island, a channel 2 miles wide. It extends in a southwesterly direction for a distance of 15 miles, and is divided into three parts, Northwest, Middle, and Southwest arms. The water is deep in mid-channel, ranging from 225 fathoms NW. by W. of Green bay island to 146 fathoms at the entrance to Southwest arm. A comparatively shoal plateau extends from the south shore, on which are several fishing banks with 21 to 36 fathoms water.

Northwest arm, an excellent harbor, extends northwest for a distance of $1\frac{1}{2}$ miles; it is half a mile wide at the mouth, expands to $1\frac{1}{2}$ miles within, and then narrows to the head.

Young head, east of the entrance, is a hillock 157 feet high, composed of gray rock, and partly covered with timber. A low isthmus joins it to the mainland, on the north side of which is situated Young cove, 300 yards long, affording good shelter for fishing-boats.

A shoal with $3\frac{1}{2}$ fathoms water lies in the entrance of the cove, nearly 100 yards from the north shore.

Rix point is the next projection north of Young cove, and terminates in a small islet 6 feet above high water. Shoals extend west and

north from this islet, the western, with $4\frac{1}{2}$ fathoms, bearing WSW. $\frac{3}{4}$ W., distant 350 yards, and the northern, with 2 fathoms on it, NW. $\frac{1}{2}$ N. 300 yards distant.

Harry head open south of Young head, bearing SE. by E. $\frac{1}{2}$ E., leads west, and the school-house north of Rix cove open north of Rix island, bearing NNE., leads north of these shoals.

Rix cove is 400 yards deep and affords shelter to a few schooners; but in addition to the dangers off Rix point, a rock with 4 feet water lies a little more than 100 yards south of Rix island, a small wooded islet 14 feet high, joined at low water to the north entrance point of Rix cove. The south edge of the trees north of Rix cove in line with the upper barn at the head of the cove, bearing ENE. $\frac{1}{4}$ E., leads south of this rock.

Coast.—From Rix cove to the head the east shore of Northwest arm is fringed by low rocks and shoal water for 150 yards from the coast line, extending farther from the shore as the head is neared. A considerable stream runs into the north side of the small cove that forms the head, and a bank, that dries at low water, is situated 200 yards from the mouth of that cove.

The west shore is fringed by rocks and shoal water extending 200 yards from the shore. This part of the arm is granitic; the other rocks are grayish in color, with indications of copper in them.

Winter-house cove, on the west shore, may be recognized by a red store on the north entrance point, off which sunken rocks extend a few yards, and by the beach of shingle, 400 yards long, at the head, behind which some houses are built in the middle of well-cultivated fields. A brook runs into the middle of the beach and a smaller stream at each extremity, the deposit from which has formed a bank that dries at low water, 150 yards from the shore, and is shoal 100 yards beyond to the depth of 3 fathoms, deepening suddenly to 10 fathoms. Anchorage is not recommended off this cove.

A rock that dries one foot bears SE. by E., distant 100 yards from a house painted red, and the shoal is continued 100 yards farther to the eastward. The brook at the north extreme of the beach open south of the inner fishing stages on the north shore of the cove, bearing WSW. $\frac{1}{4}$ W., leads south of this shoal.

White point, a projection terminating in a small cliff, is the south entrance point of Winter-house cove; the shore from it to the beach at the head is nearly steep-to. A small wooded mound lies over the coast, 200 yards west of White point.

Coast.—The coast from White point trends southerly, forming a cove, filled with sunken rock to the line of the entrance points. Any summit of the Eight hummocks open east of White point leads eastward of these

rocks. The south point of the entrance to the Northwest arm is of reddish gray cliff, with a small rock close to the east extreme, and no danger beyond 100 yards from it.

Shoal.—A shoal with $6\frac{1}{2}$ fathoms lies in the middle of the northern part of Northwest arm.

Anchorage.—Anchorage may be had as convenient in Northwest arm, with good holding-ground in 10 fathoms, after Winter-house cove is passed.

Hills.—The east shore of Northwest arm is surmounted by densely-wooded hills. Chips hill, more conspicuous than the rest, is situated half a mile east of the head of the arm, and has three summits, the highest bare, 747 feet high, and the two western 729 and 714 feet high, falling in densely-wooded slopes to the arm.

A remarkable round hill, 683 feet high, slopes to the west side of the head, and at 2 miles inland are situated the Eight hummocks, a range $1\frac{1}{2}$ miles long, with eight summits, rising from 750 to 900 feet above high water, and sloping gently to the northward.

White hills are situated 2 miles west of the head of Northwest arm, and are bare in patches at the summits; the highest is 1,160 feet. A round wooded hill 1,040 feet high lies just north of this range.

Coast.—The coast from the western entrance to Northwest arm trends to the southwestward for 2 miles to Middle arm. Small gray cliffs line the shore, interspersed with beaches of shingle. The hills above are thickly wooded, and one more prominent than the rest, 610 feet high, shows a wooded tuft when seen from the eastward.

Lower island, 22 feet high, and **Upper island**, 24 feet high, two bare rocks, are joined to this shore by boulders that cover at high water. The former is half a mile and the latter 1,700 yards distant from Northwest arm, and both show prominently against the dark, wooded shore. Near the entrance to Middle arm the coast cliffs are red, and the junction of the red and gray colors is well marked in a small cove.

A rock with 12 feet water bears SW. $\frac{3}{4}$ W. distant 450 yards from Upper island and 100 yards from the shore.

Two shoals, with $4\frac{1}{2}$ fathoms water on each of them, lie respectively S. by E. $\frac{1}{2}$ E. distant 650 yards, and SSW. distant 950 yards from Upper island.

Middle arm rock, one foot above high water, is situated close east of the northern entrance to Middle arm and a quarter of a mile from the north shore. Shoals with from 6 to 15 feet water extend 600 yards to the eastward, 250 yards to the southward, and 150 yards to the westward of this rock. There is a passage between these shoals and the north shore, but it should be used only in cases of emergency, as the

sea rolls from shoals to shore in bad weather. The south extreme of the high-water mark of the sand bar at the head of Middle arm in line with the south extreme of the north shore will lead north of the shoals, and when the rock is passed the vessel should haul out into the arm.

Middle arm is 1,600 yards wide at the mouth, extending $2\frac{1}{2}$ miles to the sandy spit that marks the termination of the first reach, beyond which a second arm extends nearly a mile, and receives the waters of a large lake, connected by a stream filled with bowlders. To the westward of Middle arm rock shoal water extends only 100 yards from the north shore, and the south shore is steep-to. The entrance to the second arm is impassable at low water even for boats, bowlders extending from the sand-spit to the opposite shore, and southeast from it for 300 yards. Shoal water extends 400 yards farther in the same direction, to a depth of 3 fathoms. The depth in the middle of the entrance is 37 fathoms, shoaling to a bar with 13 fathoms southwest of Middle arm rock, it then deepens to 34 fathoms farther west, and from that decreases in depth gradually to the shoal water off the sand-spit.

At $1\frac{1}{2}$ miles within the entrance the arm narrows to 800 yards in breadth. This is the eastern limit of the anchorage, in 16 fathoms, and for half a mile farther west good holding-ground will be obtained in 10 fathoms.

Wooded hills rise steeply over the north shore, attaining elevations of 474 to 606 feet. Over the south shore the hills fall more steeply, are sharper, and generally bare at the summits, which are 700 to 1,032 feet above high water.

Middle arm point, the southwest entrance point, may be distinguished by several white patches in the cliff near. A wooded hill, 200 feet high, rises immediately over the point.

Southwest arm is 1,150 yards wide at the entrance, between Middle arm point and Birchy cove head, from which it extends 6 miles in a southwesterly direction with the same breadth. The arm then expands to a mile in width, and, with a narrower bend, extends 3 miles farther to the head. The north shore is precipitous, and the south shore is fringed by shingle, sloping steeply from thickly wooded hills, 500 to 700 feet high, with bare land-slips of stone. The water is deep close to both shores, so that, except for small vessels, there is no anchorage but in the places about to be described.

On the north shore, 2 miles from the entrance, is situated a promontory 549 feet high, detached by a valley from the higher hills. This promontory is composed of red rock, and is covered with moss and small trees. A cascade falls over the cliffs near the east extreme.

West of this promontory, the north shore also is bordered by shingle, a considerable amount of which has accumulated off a brook at its west extreme.

Southwest head, 996 feet high, on the north shore, close inside the entrance, is a good mark for recognizing Southwest arm. The summit is small and round, and the hill falls almost perpendicularly to the water's edge. From this hill a bare spur 700 feet high, faced by stones, extends to the wooded hill over Middle arm point.

Rattling brook falls into the sea at $6\frac{1}{2}$ miles from the entrance, in a fine water-fall down the chasm in the cliffs on the north shore. A small cove is situated close southwest of this stream, into which Corner brook flows and drains a valley extending some miles inland. On the north side of this valley is situated a high range, with several conspicuous summits 1,037 to 1,168 feet high, and the south side is formed by the coast range of wooded hills from 282 to 400 feet high.

Stearin rock, 13 feet high, is a small double islet at the south side of Corner brook cove, and is joined to the main at low water. A rock that dries one foot at low water lies close east of this islet.

The deposit from the brooks has formed a shoal, which dries at low water, extending 200 yards from the shore, and the depth of 3 fathoms is found at 200 yards beyond, the water deepening suddenly to 12 and 18 fathoms.

Anchorage may be obtained by small vessels off Corner brook cove in 18 fathoms with a short scope of cable, but the holding-ground is not very good.

At $1\frac{1}{2}$ miles south from Stearin rock is situated a point projecting slightly from the line of the coast.

A shoal with 11 feet water extends in an easterly direction nearly a quarter of a mile from this point. The fall of Rattling brook open east of Stearin rock, bearing N. by W. $\frac{3}{4}$ W., leads east; and Manful point in line with the north entrance point of the arm, bearing NE. $\frac{1}{4}$ N., leads south of this shoal.

King point, near the head of Southwest arm, is low and flat, with a few houses on it and some land under cultivation. The head dries 200 yards from the high-water line, and the depth increases suddenly beyond to 15 fathoms. South brook lies a mile east of the head, and is a fine stream, draining the valley leading to Halls bay. The deposit from the brook dries at low water for a distance of 300 yards from the mouth, and the water deepens suddenly beyond. There is therefore no anchorage at the head of Southwest arm.

A telegraph station is situated on the north shore, near the head. The wood on the hills in the vicinity has been burnt by a fire that extended from Halls bay.

The point north of South brook is formed of red cliff. Ridges of rock that dry at low water extend a short distance from it.

Manful point, $6\frac{1}{2}$ miles from the entrance of Southwest arm and $1\frac{1}{2}$ miles from the point north of South brook, is a shingle spit falling steeply

to deep water. The coast forms a slight curve between these points, and off this a plateau extends with 20 fathoms water at 750 yards distant from the shore, and 10 fathoms at a quarter of a mile, shoaling gradually from the latter depth to the coast.

Anchorage may be had on this plateau, in depth as convenient, according to the length of the vessel, and this is the only place in which large vessels can anchor with safety, the holding-ground being good.

Naked Man, a pillar of rock 14 feet high, stands close to the south shore of Southwest arm, $2\frac{4}{5}$ miles southwest of Birchy cove head.

Copper mines are situated on each side of this rock, and their localities may be distinguished by the houses on the shore. A wharf has been built off that which is situated next west to Naked man.

Birchy cove head is a bare mound 81 feet high, under wooded hillocks 270 feet high. From it the shore of Green bay curves to the eastward round Birchy and Shilly coves, two small indentations, round the shores of which are some houses.

Western point, nearly a mile ENE. of Birchy cove head, is low and shelving, terminating in a flat rock 4 feet above high water at the north extreme, and a low reef on the east side. An isolated wooded hillock about 100 feet high surmounts this point.

Jackson cove, 1,200 yards wide between Western and Eastern points and 800 yards deep, is nearly semicircular; it is fringed by beaches of shingle, and surrounded by wooded hills 150 to 300 feet high.

Shoal water extends 100 yards from the shore, and a bank with 6 feet water extends 150 yards from the middle of the cove. A rock on which a wooden pier has been built stands close within Western point.

Fishing rock, with $3\frac{1}{2}$ fathoms water, is the shoalest part of a bank lying off the mouth of Jackson cove; it bears NE. $\frac{1}{2}$ N., distant 750 yards from Western point.

Anchorage may be had in this cove, with shelter from all but northerly winds, in 16 to 13 fathoms, but the water shoals suddenly, and care should be taken that the vessel has room to swing clear of the shoal off the middle of the cove.

Eastern point is the extreme of a wooded mound 85 feet high, joined by a low isthmus to the main. Rocks and shoals extend 100 yards to the westward, and the cove east of this mound is filled with rocks as far as Patrick point, nearly half a mile NE. by E. of Eastern point. The Arch, a natural hole through the cliff, is situated close west of Patrick point. This point is bold-to.

Langdown and Nicky Nose coves lie east of Patrick point. The latter has a beach 600 yards long, through which drain two ponds. The coast here has no danger beyond 200 yards from the shore.

Nicky nose, nearly $1\frac{1}{2}$ miles E. by N. of Patrick point, is a remarkable wooded cone 426 feet high, with a steep fall to seaward, and shows prominently from the line of Green bay.

A rock awash at high water bears WSW. $\frac{3}{4}$ W., distant 400 yards from the low islet at the extreme of Nicky nose, and a shoal with 8 feet water lies at the same distance bearing NE. by E. A beach of shingle 200 yards long lies SE. of Nicky nose.

Harry head is situated a mile east of Nicky nose, and terminates in a peaked rock. The coast between is steep-to and surmounted by wooded hills.

Salmon cove, east of Harry head, is 650 yards wide. A shingle beach lines the head of the cove, fronting a narrow low neck. A road extends to Harry harbor across this neck, and the school-house, a plain wooden building with a flag-staff near, stands on the highest part, about midway. The water is deep till within 100 yards of the shore, and the depth varies from 12 to $4\frac{1}{2}$ fathoms, but the holding ground is bad.

Salmon rock, a low bare islet, 16 feet high, lies close to the east entrance point of the cove. A shoal with 4 fathoms water bears SW. by W., distant 300 yards from Salmon rock and 150 yards from the shore. A bank with 8 fathoms water bears WSW. $\frac{3}{4}$ W., distant 400 yards nearly, and another, with 7 fathoms water, W. $\frac{1}{2}$ N., the same distance from Salmon rock.

King cove, half a mile east of Salmon rock, is 400 yards deep to the beach of shingle at the head. Several houses are built round this cove. The west entrance point is foul for a short distance, but otherwise the shores are free from dangers.

Burgess cove, east of King cove, is filled with shoals to the line of the outer points.

The channel between Green bay island and the mainland, 200 yards wide, lies east of Burgess cove. Numerous rocks lie in the passage, and in easterly gales breakers roll across the southern part, but in ordinary weather there is a passage for a vessel drawing 10 feet water by keeping the mainland shore close on board.

Green bay island is composed of two mounds with a deep gap between, the eastern 155 feet high and nearly bare, the western 202 feet high and wooded. A beach of shingle lies north of the gap. The island is faced by dark gray cliffs, up which the sea beats with great violence; rugged rocks lie all along the shore, but there is no danger beyond 200 yards from the south and east sides of the island. Wills rock, awash at low water, lies close to the north shore, and may be avoided by keeping the beach at Burgess cove in sight.

Green bay rock, 9 feet above high water, bears SE. by E., distant three-quarters of a mile from the east extreme of Green bay island. Another rock, also above high water, lies close west, and with four rocks that uncover at low water occupies a space nearly 200 yards in diameter. A rock with less than 6 feet water on it lies E., distant 100 yards nearly, and a shoal with 10 feet water bears W. by S., distant 200 yards from the highest rock. The sea breaks furiously on these shoals in an easterly gale.

Western arm, immediately south of Green bay, is 6 miles deep and half a mile wide. Some islets and rocks lie off the north point. The south point is continued by islands, sheltering a small bay to the southward.

Southern arm, south of Western arm, is $4\frac{1}{2}$ miles long, and narrow. It is obstructed in the middle by an island half way to the head. There is anchorage for small vessels in a cove on the south shore, 3 miles from the entrance.

Little Bay, south of Southern arm, is 8 miles long, nearly 4 miles wide at the entrance, narrowing to three-quarters of a mile at 3 miles from the entrance. The north shore has a chain of rocky islets, and the entrance south of Otter island has a rock nearly in mid-channel. Little bay islands lie off the south point of this bay.

Anchorage may be found inside Otter island, off the Copper Mining Company's wharf, in 13 fathoms, but it is necessary to moor, as the space is limited.

Coal.—Small supplies of coal can generally be obtained from the owners of the copper mines.

Halls Bay, south of Little bay, is 18 miles long and $1\frac{1}{2}$ miles average width. There are three considerable brooks in this bay; Indian brook, the seat of an important fishery; Salmon brook, with an extensive salmon-curing establishment, and down which fine spars are floated from a large pine forest surrounding a lake from which the brook flows.

Anchorage.—There is good anchorage in 4 fathoms, mud, immediately west of Woody or Burnt island (on south side of entrance to Indian brook), with Mill or Green island (situated on the north side of entrance) shut in by Woody island bearing NE. $\frac{1}{2}$ N., and a house near the center of the bight bearing W. $\frac{3}{4}$ S.

Care should be taken in approaching this anchorage, as the bank (which is of a horseshoe shape) is somewhat steep to seaward, rising quickly from a depth of more than 12 fathoms to that of 4 fathoms, and then shoaling gradually towards the shore, at a moderate distance from which there is a depth of $2\frac{1}{2}$ fathoms.

On the northern side of Mill island there is a steam saw-mill and dwelling-house.

Long island lies off the south point of Halls bay. From the north extreme Stag islands, a group of islets and rocks, extend, occupying a space 4 miles long, north and south, and about a mile broad. Gull island, at the north extreme, is steep-to on the north side.

Cutwell harbor is situated on the east side of Long island. Hardrix island, bold-to, lies off the south point of the entrance with a deep channel on either side.

Fools cap, a rock with 2 feet water, lies NW. by N. half a mile nearly from Hardrix island. To pass west of it, keep Gull island open west of Stag islands; and the east extreme of Southern head of Long island touching the east point of Hardrix island leads southwest of it.

The only dangers in the harbor lie off the coast 200 yards and uncover at half tide. The harbor is 800 yards wide at the entrance, so that large vessels may beat into a secure anchorage in 5 to 10 fathoms, sand and mud. The arm runs $1\frac{1}{2}$ miles above the narrows, and is well adapted for refitting vessels, but only 15 feet can be carried in at low water.

Wood and water may be had in abundance here.

Sunday cove, Pilley, and Great Troytown islands lie between Long island and the main; the channel separating them from Long island is Long island tickle. There is no passage between these islands and the main.

Great Troytown harbor is situated at the north side of Great Troytown island. These are two passages, one between Big Troytown and Great Tinker islands, and the other between Great Tinker and Dark Tickle islands. Big Troytown island shelters Little Troytown harbor, a good anchorage for small vessels.

Anchorage may be had in the harbor in 19 to 16 fathoms, mud; but small vessels may go into the coves to the eastward or southward, and moor to the trees.

Danger.—There are a large number of islands lying about a mile to the northward and eastward of Troytown island, but their shores are generally bold-to.

League rocks, a small group, lie ENE. from the east end of Troytown island, distant about $2\frac{1}{2}$ miles.

A bay is situated westward of Pilley island, having an island (Gull island) in the entrance, between the north extreme of which and the mainland there are some shoals; the channel southward and eastward of this island is clear.

Robert's harbor.—A narrow channel with a depth of 15 fathoms in it leads from this bay to Robert's harbor, which is completely sheltered and has good holding-ground; two islets are situated at the entrance,

the eastern of which (Entrance islet) is wooded and steep-to, lying near the southern entrance point; the western islet is bare and rocky, with a rock, having 4 feet over it at low water, lying 70 yards north of the southwest extreme. A rock which uncovers about 2 feet at low water lies about 70 yards southwestward of the northern entrance point.

Directions.—Having passed southward of the island in the bay, steer between it and the main, keeping near the southern shore; when entering Robert's harbor keep near the northern shore and anchor westward of the entrance as convenient, taking care to avoid the rock lying off the northern entrance point. Vessels should not enter the basin at the northern part of Robert's harbor.

Anchorage.—Convenient anchorage will be found in the southern part of Robert's harbor in 10 fathoms, mud, affording excellent holding-ground. Large vessels should moor, as the width of the harbor is only about 300 yards.

A pilot may be obtained at Little bay.

Badger bay is an arm of the sea south of Great Troytown island, extending southwestward 9 miles, with a breadth of 2 miles. It is separated into several bays at the head by projecting points, and contains some dangerous rocks.

Seal bay, south of Badger bay, runs up 7 miles. A group of islets is separated from the east point by Leading tickle, a narrow channel. Anchorage may be had in this tickle.

New bay runs in S. 12 miles, immediately east of Leading tickle, is divided into several arms, and fronted by islets and rocks. The arms are rocky near the shores, and numerous dangers encumber them. The ~~South~~ ^{east} shore of this bay is formed by a peninsula with a narrow isthmus in Southwest arm.

Fortune harbor is situated at the north extreme of this peninsula, and affords good shelter in 18 fathoms; but the entrance is intricate and dangerous from the baffling winds that blow over the high surrounding land. Rocks lie off both points of the entrance, but near the shore.

Water is scarce in the summer.

Bay of Exploits is entered between Northern and Western heads, distant 12 miles from each other. Western head is the north extreme of New World island, rugged and much indented with several harbors. The entrance of the bay contains a large number of islands, the northern of which, Exploits Burnt island, has a large fishing village on it. From this island the bay runs up 30 miles to the river at the head; and west of this island is the best channel up, by keeping the west shore about half a mile off.

The bay and river are surrounded by high pine-covered hills, and the shores are thinly peopled. Several saw-mills are working or being constructed near the head. The river is navigable for light-draught vessels for 12 miles to the first fall, passing the first rapids at 10 miles from the mouth. The river is a mile wide at the mouth, diminishing rapidly until at 2 miles it assumes a uniform width of about 750 yards.

Anchorage.—Good anchorage can be had in 10 fathoms, mud, in Peter's arm, at the head of river of Exploits inlet. From the anchorage a conspicuous round hill at the head of the arm bears S. 37° W., and the northeast entrance point N. 14° E.

Gull island lies close off the western head of New World island.

A rock lies mid-channel in the passage between, and may be avoided by keeping either shore close on board.

Farmers arm is situated on the west shore of New World island, 7½ miles from Western head, and is entered south of Farmers head, a conspicuous bluff point.

Chance harbor is situated 4 miles from Western head, but the channel in is dangerous, and should not be attempted without a pilot.

Mortons harbor is on the north shore of New World island, 2 miles southeast of Western head. To enter, keep mid-channel between the entrance points, and round west of a little peninsula on the east shore, south of which anchorage may be had in 11 fathoms.

Old Roger bank, with 15 fathoms water, is situated about 4 miles N. by E. ½ E. from Gull island and should be avoided in bad weather.

Dildo run and **the Reach** are two narrow channels separating New World and contiguous islands from the main. Both channels are narrow and very intricate, but are much frequented by local vessels proceeding to bay of Exploits for lumber.

Toulinguet islands, situated on the eastern side of Notre-Dame bay, form a group consisting of two large islands, known as North and South islands, and several smaller islands lying off them; they are separated from the north side of New World island by Main tickle, a narrow channel with several rocks in the west entrance.

North island is 3 miles long, north and south, and 1½ miles at its greatest breadth; it is connected at low water with South island, and at all times communication is maintained by a bridge. On it are situated several ranges of hills separated by marshes, and the outline generally is rugged, yet, when seen from the eastward, the north extreme of the island appears as a table land. The coast line generally is rugged, being indented by a small harbor and several coves. The best mark of recognition is the light-house. A flag-staff stands on a hillock close

west of the light-house, and a barn with a red roof situated westward of the flag-staff shows plainly from some points of view. North island forms the north side of Toulinguet harbor, which is comprised between North and South islands and is partially sheltered by Burnt island and the group to the eastward.

The south extreme of North island is a low peninsula, ending in a small cliff 53 feet high, from which rugged points extend. The court-house stands at the north extreme of this peninsula.

Old House cove, a shallow indentation 350 yards deep, lies northwest of the south extreme of North island. Some rocks that cover at high water are situated close to the north shore of this cove.

Dumpling cove, 450 yards deep, is situated north of Old House cove. Dumpling point, lying between the coves, may be approached to 200 yards. Smith lookout, a sharp cone 207 feet high, lies between the coves, and slopes to Toulinguet harbor on the north side.

Back harbor is the next indentation north of Dumpling cove, and is sheltered on the south side by Batrix island and a labyrinth of rocks extending 400 yards from that island, that are joined together and to the main at low water. Offer rock, the westernmost of these, is 14 feet high and may be approached to 200 yards.

Batrix island is surmounted at the north extreme by a round bare hill 167 feet high that slopes to the eastward, forming a low plateau faced by a beach of shingle, which is connected to North island by a bridge. A rock with 2 feet water on it lies a short distance north of the north extremity.

Back harbor is entered through a passage 300 yards wide between Batrix island and Back harbor head; it is circular and 700 yards in diameter, but is narrowed to a space 300 yards long and 400 yards broad by shoals extending from both shores. Point of rocks extends 150 yards into the harbor from the east extreme of Batrix island, and White ground, with 3 feet water on it, lies north, distant 100 yards from Point of Rocks. The shores are shoal round for a distance of 100 yards, and from the middle of the northeast shore a ledge extends nearly 200 yards. The northern islet south of the channel, between Batrix and North islands, shut in with the apparent extreme of the latter, bearing SSE. $\frac{1}{2}$ E., leads east of White ground, and the north extreme of Batrix island, bearing southward of SW. $\frac{1}{4}$ W., leads north of that danger.

Back harbor head, north of the entrance, is a round hill with two summits 169 feet high, that fall in steep bluffs to seaward.

Harbor rocks, that dry at low water, extend nearly 200 yards off the west side of Back harbor head, and the highest, a peaked rock 10 feet high, lies 133 yards from the head.

Gull island (Back harbor), 130 yards in diameter, 96 feet high, covered with grass and faced by cliffs, lies 450 yards southwest of Back harbor head. A shoal with three fathoms water on it lies 100 yards from the north side, and a rock with 7 feet water on it is situated 133 yards NE. by E. from the east extreme, narrowing the passage between it and Harbor rocks to 200 yards. This passage is rarely used.

Directions.—Having made Gull island (Back harbor), steer to pass south of it, and then proceed in mid-channel into the harbor, where anchorage may be had in 9 to $4\frac{1}{2}$ fathoms with shelter from all winds but those from W., which send in a heavy sea in autumnal gales. Small vessels may proceed to a better shelter by keeping the north extreme of Batrix island bearing southward of SW. $\frac{1}{4}$ W. until the islet next south of the passage between Batrix and North islands is shut in with the latter. Steer in on this mark, and anchor when Point of rocks is in line with the north extreme of Batrix island.

A considerable settlement surrounds Back harbor; the magistrate's house being situated among a group of trees just east of the harbor.

The coast north of Back harbor, is indented with rugged coves that afford no shelter. A few houses are built in each cove, and the soil is partially under cultivation.

Crow head, a narrow projection 350 yards long, 70 feet high, and faced by cliffs, extends from the coast at three-quarters of a mile north of Back harbor head, and shelters a small cove on its north side, where a few fishing stages have been built. A rock with 2 feet water on it is the summit of a shoal extending nearly 200 yards southwest from Crow head.

Lower head, situated $1\frac{1}{4}$ miles northwestward of Gull island (Back harbor), is a promontory 800 yards long, 177 feet high, and fronted by cliffs sheltering a small cove on the south side just within the extreme. Snaptail, a rock that covers at high water, lies close to the north side of Lower head.

Sleepy cove is situated at the east extreme of the cliffs forming the north side of Lower head. It is small and open, but affords shelter to a few boats. A rock with 5 feet water on it lies 67 yards SW. by W. from Sleepy cove point, which is situated north of the cove.

Gull island (Sleepy cove) is the highest of a group of islands lying northwest of the cove of that name. It is surmounted by a curious pinnacle, 149 feet above high water, covered with grass and faced by cliffs. Little Gull island is connected to the west extreme of Gull island at low water, the whole group being 400 yards long and 150 yards in extreme width.

A rock that uncovers 3 feet at low water lies off the northwest side, and is connected by a reef to Gull island. Shoal water extends north for a distance of 100 yards from the rock.

Northeast rock, with 4 fathoms water on it, lies N. $\frac{1}{2}$ E., distant a little more than 200 yards from the north extreme of Gull island. Lower head open either side of that island leads north and south of this rock.

A rock with 10 feet water over it is situated a few yards southeastward of Little Gull island.

Gunning rock, 33 feet high, is situated 67 yards SW. by W. of Little Gull island, the passage between them being shallow.

High Shag rock, lying 150 yards NW. by W. of Gunning rock, is 86 feet high, and has a little grass at the top, the sides being of cliff. There is a deep passage between High Shag rock and Gunning rock.

West Shag rock, 33 feet high, rugged and bare, lies nearly 200 yards southwest of High Shag rock, and is steep-to on the west side.

Low Shag rock, about 10 feet high, lies close SE. of West Shag rock. Between them are several sunken dangers and no available passage. A cluster of small rocks that are connected at low water, and from all sides of which shoal water extends a short distance, are situated close southwest of Low Shag rock.

Friday ledge, with 12 feet water on it, lies SW. $\frac{1}{2}$ W., distant 300 yards from Gunning rock, and Coggles ledge, with $5\frac{1}{2}$ fathoms over it, bears SE. by E., distant 133 yards from Friday ledge. Gull island (Sleepy cove) open north of Gunning rock, and bearing NE. $\frac{1}{4}$ E., leads north, and Long point well open south of Little Gull island, bearing NE. $\frac{1}{2}$ E., leads south of these ledges.

Long point, the north extreme of North island, is the termination of a line of low bare rocks, at the southern extremity of which is situated the Pinnacle, a conspicuous conical cliff 153 feet high.

Coast.—The coast between Sleepy cove and the Pinnacle is much indented. The Nuddick, a truncated cone about 150 feet high, falling steeply to seaward, is situated about midway between them, and the eastern part of the shore is steep-to.

Devil cove head is situated close southeast of Long point, and is inaccessible from the sea, falling in steep cliffs to the water's edge, except immediately under the light-house, where there is a land-slip. Near the base of the land-slip is situated a reddish rock, the only slab of that color on the outer coast in the neighborhood of Toulinguet islands. The approach to this head is bold, and there is no appreciable change in the depth of water till within a short distance of the shore.

Light.—On Long point (Devil cove head), near the north extreme of North island, a square red light-house 45 feet high has been erected, from which, at an elevation of 335 feet above high water, is exhibited a *revolving white light*, that attains its greatest brilliancy every *thirty sec-*

onds, and should be visible from a distance of 27 miles in clear weather. The keeper's dwelling is painted white, with a red roof, and is joined to the light-house by a low passage-way 26 feet long.

This light-house is situated in latitude $49^{\circ} 41' 20''$ N., longitude $54^{\circ} 47' 35''$ W.

Devil cove, lying southeast of Devil cove head, is quite exposed to the eastward. It is 400 yards deep, with steep cliffs at the sides and boulders at the head. The east extreme is marked by three rocky islets, the highest 98 feet above high water. A track extends from the earth cliff at the head of this cove to the road leading to the light-house.

Horney head, situated 1,400 yards southeastward of Long point, may be identified by the conical rocks, about 25 feet high, that lie close to each bill, and by the summit, a sharp peak 309 feet above high water. This head is steep-to. Two rugged coves, both foul and rocky, lie south of Horney head.

Cuckold point, situated 700 yards SE. by S. of Horney head, forms the south extreme of Horney head cove (the southern of the two coves before mentioned), and is the east extreme of two mounds about 120 feet high, faced by cliff and flat at the top. These mounds are connected to each other and the main by narrow necks of cliff, through one of which there is a hole. A cliff that is remarkable when seen from the line of the coast is situated close west of these mounds; it is 183 feet high, and appears to overhang the sea.

Rocks.—A rock with 6 feet water on it lies NW. $\frac{1}{2}$ N., distant 150 yards from Cuckold point, and a rock with 13 feet water on it lies a short distance from the east extreme of the southern mound.

Toulinguet harbor is entered through a passage 900 yards wide, between Cuckold point and Burnt island. It is a little more than 2 miles in length from the entrance to the bridge at the head, and from a breadth of three-quarters of a mile (to which it expands immediately within the entrance) diminishes in width gradually to the head of the harbor.

Wild cove lies 1,050 yards south of Cuckold point, the intervening coast being of steep cliff, fringed by rocks that cover at high water and extend 150 yards from the shore. The cove may be recognized by the beach of shingle at its head, and is sheltered by two narrow projections of rocky cliff, off which a reef and shoal water extend 200 yards. This cove is foul, and should not be entered farther than to bring the east extreme of Wild cove rocks to bear SSE.

Little Wild cove is the next cove south of Wild cove, and is shallow. A few houses are built close inshore of the beaches in both these coves.

Wild cove rocks extend from the point next southeast of Little Wild cove and occupy a space 300 yards square. The northern rocks cover at high water; the highest, 11 feet above high water, is situated in the middle of the group, and the southernmost, which is joined to North island at low water, is surmounted by a sharp-peaked rock 10 feet high.

Shoal.—A shoal with three fathoms water on it lies NE. $\frac{1}{2}$ N., distant 200 yards nearly from the peaked rock, within which distance Wild cove rocks should not be approached.

Coast.—When approaching Wild cove, Bear berry hill, a wooded cone surmounted by a small knob 252 feet above high water, is seen to the southwestward of the cove. This hill is separated on the east side by a slight valley from Bald hills, 245 feet high, that slope to Little Wild cove on the north and to Paradise cove on the south.

The coast from Wild cove rocks to the wharves is formed by a series of low cliffs intersected by small beaches. From the wharves to the head shingle fringes the shore, which gently slopes from the near hills.

Paradise is a settlement within the largest beach between Wild cove rocks and the wharves.

Town.—The principal part of the town of Toulinguet is situated round the shores of the harbor south of the wharves. The church (a large wooden building with a spire) stands on North island, close west of the southern wharves. A large two-storied dwelling stands about half way between the church and the bridge connecting North and South islands, and the Orange hall, a white gabled building with a flag-staff, is erected on the slope of Smith lookout a little north of that bridge. The principal buildings on South island are the premises known as Slade's room, near which stands a flag-staff surrounded by a white boarding; Duder's room, consisting of several white buildings with black roofs, nearly opposite the church; the Wesleyan chapel, a gabled building close east of Duder's room; and a church in course of erection near the summit of Tom Tumbler lookout, a hill 173 feet high, lying about half a mile east of Duder's room. Good roads extend from the settlement to the various coves on North and South islands, and tracks to the less frequented localities.

Water can be procured from a government well, near the road east of the church, and supplies may be obtained from the trading firms established here.

The head of the harbor is shallow and encumbered with rocks.

Tides.—It is high water, full and change, in Toulinguet harbor at 7h. 8m.; springs rise 4 feet, neaps $3\frac{1}{2}$ feet.

Pearce rock, the easternmost on the west shore, lies close to North island; it is surmounted by a knob 4 feet above high water and is bold-to.

Harbor rock, 7 feet high, is the highest of the rocks at the head, and is situated nearly in the middle of the harbor. Vessels should not proceed west of the line joining Pearce and Harbor rocks.

The hills on South island over the south extreme of the harbor are about 180 feet high, and the valleys between them are filled with small ponds.

Shoal—A shoal 100 yards square, with 9 feet least water on it, lies 150 yards from Duder's room, and bears NE. by N. distant 250 yards from Harbor rock. Young point, the apparent south extreme of North island, open west of Harbor rock, bearing S. $\frac{3}{4}$ W., leads west of this shoal. In approaching the head of the harbor the church on North island should not be brought to bear north of W. by S.

The shore of South island, N. of Duder's room, is skirted by rocks, the outer of which, named the Brandies, dries 2 feet at high water and extends 250 yards from the shore.

Harts island, 19 feet high, small and grassy, lies off a small cove obstructed by rocks 800 yards N. by E. of Duder's room. Shoals extend 150 yards from the south extreme of the island. Burnt island seen open of Carters head leads west of the Brandies, and the shoals northward of them.

Carters head, a small promontory terminating in a cliff 58 feet high, extends a quarter of a mile from the shore. Off the extreme are situated a small islet and some rocks. Carters rock, with 6 feet water on it and deep water close to the north side, lies northeast, distant 150 yards from the islet.

Jenkins cove lies east of Carters head and affords no shelter. The shore is formed by shingle beaches and rugged points, off which shoals extend a short distance. A low isthmus separates the head of this cove from Farmers arm.

Higgins island, lying 1,100 yards N. by E. of Carters head, is 21 feet high, covered with grass, and forms the turning point into Burnt island tickle. The Baker, a rock that dries 3 feet at low water, lies 100 yards west from the point next south of Higgins island.

White ground, with 5 feet water on it, is situated W. $\frac{1}{2}$ S. distant 350 yards from Higgins island. Slade's room well open west of Carters head leads west of this shoal.

Carter head, situated 900 yards NE. by E. of Higgins island, is rugged and foul. Rocks that uncover extend a short distance from the extreme.

Durrels arm is entered east of Carter's head, between the peninsula forming the east side of Toulinguet harbor and French head. The coast is extremely rugged, rocks and shoals extend a considerable distance

from the shore, and there is no safe anchorage for a large vessel. Small craft, navigated by those possessing local knowledge, find shelter at the head, but a heavy sea rolls in with east and northeast gales.

Red island, a small pinnacle 17 feet high, is situated 550 yards east of Carter head, and is the outer rock above high water off this shore.

Shag rocks, 16 feet high, are a group joined at low water and lying southeastward of Red island.

Parky rock, 2 feet high, lies 267 yards northeast of Shag rocks, and is steep to on the east side, but rocks extend to the westward and southward, almost closing the passage between it and Shag rocks. Mad rock, 2 feet high, lies 300 yards south of Shag rocks, and is continued 150 yards under water.

Farmers arm extends 1,100 yards southwest from Mad rock, and is 300 yards wide, but shallow from the entrance. It affords good shelter for fishing-boats only. The point dividing Farmers and Durrels arms is low and narrow; Middle rocks extend from it for 300 yards.

The south shore of Durrels arm is rugged. In the middle is situated Blow-me-down, a conical hillock 57 feet high, 100 yards NW. by N. of which lies Primmer rock, with one foot water on it.

French head, a conical islet 185 feet high, is nearly joined to South island at the east point of entrance to Durrels arm; it falls in cliffs to seaward and in steep slopes toward the land. A double-peaked bare hill 264 feet high, of a yellowish color, forms the summit of the land in this neighborhood, and is situated close south of French head.

Spillers point, another conical islet, similar in shape to French head, but only 159 feet high, lies off the east slope of that hill. Both these islets are remarkable when seen from seaward. Spillers rock extends 100 yards north from Spillers point.

Shag roost, a rock 20 feet high, lies between French head and Spillers point, and a shoal with 15 feet water on it lies close west of Shag roost rock.

Burnt island is separated from Carter head by Burnt island tickle, a passage 500 yards wide, but so encumbered by rocks as to be navigable only with local knowledge.

Burnt island is faced by cliffs on the north and west sides, the summit, 230 feet high, being over the northwest extreme. The water is deep to within 200 yards of the north and west shores, but the south shore is foul, and from the east extreme a group of islets and rocks extends nearly a mile.

Handkerchief cove head, the south extreme, is a small peninsula, the extreme of a long slope from a hill 225 feet high.

Hell-mouth head, a conspicuous conical cliff, 200 feet high, marks the west extreme of the island; the northwest shore is indented with deep ravines, the points of which terminate in peaked hillocks.

Rose head, the east extreme of Burnt island, is an isolated round hill, 148 feet high, and is remarkable when seen from the northward.

There is no passage for vessels through any of the apparent channels between the islets that lie east of Burnt island.

The Rags, 23 feet high, are the easternmost of this group, and there is deep water beyond 200 yards east from them.

Rags rock, with 11 feet water on it, lies 200 yards north of the Rags.

Anderson island, the largest of the group, is 76 feet high and of a gray color. Duck ledge, with 7 feet water on it, extends 200 yards from the north extreme of Anderson island.

Hatchet rocks are three in number, lying off the west end of Anderson island. The inner rock, with 10 feet water on it, lies NW., distant 350 yards; the middle rock, with 3 fathoms over it, bears NNW., distant 400 yards; and the outer, with $5\frac{1}{2}$ fathoms water, bears N. by W., distant 600 yards from the west extreme of Anderson island.

Red rock, a small pinnacle, 5 feet above high water, is situated 500 yards east of Handkerchief cove head, and 100 yards from the nearest part of the south shore of Burnt island.

Rocks.—The following rocks and shoals are situated in Burnt island tickle. A group of four, the shoalest with 10 feet water on it, and occupying a space nearly 200 yards square, lies in the middle of the west entrance to the tickle, narrowing the passage on either side to a breadth of 150 yards.

Carter head rock, with 12 feet water on it, lies 200 yards N. by E. of Carter head, and Lawrence ledge, with 7 feet water over it, bears NNE., distant 550 yards from Carter head.

Old Roger, with 12 feet water over it, lies N., distant 250 yards; and **Young Roger**, with a depth of $3\frac{1}{4}$ fathoms water, bears N. $\frac{1}{2}$ W., distant 350 yards from Red island.

Millers rock uncovers 3 feet and is situated NE. by E. $\frac{1}{2}$ E., distant 350 yards from Red island. Shoals at 100 yards distance surround this rock. A shoal with 12 feet water on it lies NE. $\frac{1}{2}$ E., distant 550 yards, and another with $3\frac{1}{4}$ fathoms over it bears NE. by E., distant 900 yards from Red island.

White rock, with $3\frac{1}{4}$ fathoms water on it, the east extreme of this ridge of shoals, is situated NE. by E. $\frac{1}{4}$ E., distant 1,050 yards from Red island and 650 yards from French head.

Nine-foot rock, on which is a depth of 4 feet water, is situated NW. by N. distant 400 yards from White rock, and 350 yards from the nearest part of the group east of Burnt island.

Gull island, 161 feet high and 350 yards long, is a good mark of recognition for Toulinguet harbor, from the entrance of which it bears NNE. $\frac{1}{2}$ E., distant $1\frac{1}{2}$ miles. It is flat at the summit, covered with grass, and falls in steep cliffs nearly all round. A peaked islet, 96 feet high, is separated by a narrow channel from the west extreme; sunken rocks extend a short distance from the south point, and Gull island and rock, with 13 feet water on it, lies nearly 100 yards north of the north extremity.

Old Harry is the name of two shoals, 200 yards apart, lying NW. and SE. of each other. The inner, with 16 feet water over it, is situated NW. by N., distant a little more than $1\frac{3}{4}$ miles from Gull island, and the outer rock has $3\frac{1}{2}$ fathoms water on it. Western head of New World island open west of Gull island (Sleepy cove) leads west; Gull island (Sleepy cove) open west of Lower head, bearing SSW. $\frac{3}{4}$ W., leads south-east; Burnt island open of Gull island, bearing SE. by S., leads south-west; and Carters head just open west of Burnt island leads east of these dangers.

Bacalhao island, E. 9 miles from Toulinguet Gull island, is 2 miles long NE. and SW., and a third of a mile wide; it is barren with a broken surface, having the highest part near the west end, 324 feet above high water.

Bacalhao islet is small, 4 feet high, foul all round, and should not be approached nearer than a quarter of a mile; it lies E. by N. about a mile from the east end of Bacalhao island.

Joe rock, with 3 fathoms, lies NE. by E. 900 yards from the east point of Bacalhao island.

Bacalhao ground, with 8 fathoms, lies NNE. 800 yards from Joe rock, and NW. by W. half a mile from Bacalhao islet.

Cheeky rock, with 12 fathoms, lies NE. by N. three-quarters of a mile from Bacalhao ground, and N. by E. three-quarters of a mile from Bacalhao islet.

Berry rocks lie NE. by N. $2\frac{1}{2}$ miles from Bacalhao islet, and a mile on the same bearing from Cheeky rock; they have 11 to 13 fathoms over them, and cover a space of half a mile.

Elliot spot, with 19 fathoms, is three-quarters of a mile N. by E. of Berry rocks; it is small, and steep to all round.

Berry island, rocky, barren, and 188 feet high, lies 1,400 yards SW. by W. of Bacalhao island, with deep water between.

A rock, with 15 feet water, lies NW. by N. 200 yards from the north-east extreme of this island.

Starve head, a steep cliff 239 feet high, is separated from Berry island by a channel 1,200 yards wide, in the middle of which is Clarke rock, small and covered at high water, but generally showing by a breaker. Between the rock and Berry island is a clear channel, but a vessel should not pass between it and Starve head.

Starve harbor lies immediately south of Starve head. The entrance is about 30 yards wide and 200 yards long, with 4 fathoms water. It opens out to a deep-water basin, 400 yards wide and half a mile long. There is a reef on the north shore, just within the entrance, so that it is necessary to round close by the island forming the south head.

Goldson arm.—Herring neck, lying between the land of Starve and the peninsula of Herring head, is the inhabited portion of the entrance to Goldson arm. From off the western extreme of the peninsula a reef extends 300 yards; to clear it keep the south side of Bacalhao island in line with the north of Goose islands, and when Starve head is in line with the point south of it the vessel will be past the reef, and may proceed up the arm, keeping on the northshore, which is steep-to. A small vessel may anchor in Ship cove, just within the north head.

On the same shore, half a mile farther up, is Starve cove, also affording anchorage for a small vessel. There are rocks a few yards off both the entrance points. Both these coves are so small that a vessel seeking anchorage could not be sure of finding room in them. The depth in the main part of the arm off them is 30 fathoms, so that it would be requisite to run farther up, about $1\frac{3}{4}$ miles above the entrance, to Burnt arm. In doing so, when the entrance to Burnt arm comes open, keep on the north shore, with the cliff north of Herring neck open of the south shore, to avoid a patch with 3 fathoms water that lies nearly in mid-channel; and when above Burnt arm anchor in 13 to 10 fathoms, mud.

Goose islands are a small group lying midway between Berry island and Herring head promontory; they are steep all round.

Herring head, a steep headland rising 264 feet above the sea, and the eastern extreme of a narrow peninsula $2\frac{1}{4}$ miles in length, lies SE. $\frac{3}{4}$ E. $1\frac{1}{2}$ miles from the west extreme of Bacalhao island.

Herring islands, 400 yards off the head, are small, about 20 feet high, and may be passed on either side, being steep all round.

Kiar reef, awash at low water, can generally be seen by the sea breaking on it, and is situated NE. by E. three-quarters of a mile from Herring islands.

Blow-hard rock is 400 yards W. by S. of Kiar reef, with deep water between; it breaks heavily, but not continuously, in a moderate sea.

NE. by E. for 3 miles from Kiar reef, in continuation of the line of Herring head promontory, are small patches of 7 to 14 fathoms, which break at times during a heavy sea.

Sly ledge, the westernmost of these patches, lies NE. by E. 1 mile from Kiar reef, and has 7 fathoms least water.

Shem rock, with 10 fathoms, is three-quarters of a mile NE. by E. of Sly ledge.

Foggy ledge.—From Shem rock to Foggy ledge is $1\frac{1}{4}$ miles. In this space there are several patches of 7 to 14 fathoms, and when there is a probability of their breaking they must for practical purposes be considered as one danger.

Directions.—All these shoals may be avoided by keeping Mile islet (the easternmost of the Shag islets group) just open of North-end, bearing S. by W., and by keeping Herring head north or south of a SW. by W. bearing; or, if proceeding westward, by steering for the land north or south of that head; when south of them, Creeper ledge will be the only danger. To cross the line of shoal patches southwest of Sly ledge, bring the east end of Bacalhao island to bear north of NNW.; and to pass east of it, steer SE. by S. for Mile islet.

Red islet, small and low, lies SE. half a mile from Herring head, with a reef extending 200 yards from the northeast extreme, and a shoal with 6 fathoms on it $\frac{1}{4}$ of a mile from the end of the reef.

Haypoock is a dangerous rock S. $\frac{3}{4}$ W. 400 yards from Red islet.

Duck island, SE. by S. $2\frac{3}{4}$ miles from Bacalhao island, is $\frac{5}{8}$ of a mile long, NE. and SW. 300 yards wide, and 181 feet high. Two rocks are situated 200 yards off the northwest side. The west extreme is foul for 300 yards, but the south shore is bold-to.

Moorham reef, NE. $\frac{1}{2}$ N. 1 mile from Duck island, is awash at low water, and can generally be seen by the sea breaking over it.

Creeper ledge, with 11 fathoms, lies NE. by E. $1\frac{1}{4}$ miles from Moorham reef. The west side of Change island open east of Mile islet S. by E. leads east, and Mile islet bearing about SE. $\frac{1}{2}$ S. leads west of it.

Grassy islets, a low group, are separated from the south extreme of Duck island by a narrow but deep channel.

Grassy rock, NE. by E. 550 yards from the east end of Grassy islets, has 3 fathoms on it. The first deep saddle in Bacalhao island open of Duck island leads east, and the north point of Jacks island open south of Grassy islets leads south of it.

Jacks island is three-quarters of a mile within Duck island; its eastern and highest peak is remarkable, being 235 feet high. Between

Jacks island and the point of New-world island, west of it, are two islands dividing the space into three tickles leading into Cobbs arm. The first west of Jacks island is Long tickle; the shoalest water in it, 2 fathoms, is at the south end; near the north end, on the east shore, is a rock always covered; this tickle is 70 to 80 yards broad. Treenail tickle is the next west, and the most western is named Ropers harbor. Both these are crooked and only available for boats.

Between Herring head and Duck island are Cobbs, Little Cobbs, and Pikes arms. The two latter are encumbered with rocks and a heavy sea rolls in, rendering them of no value except for fishing boats.

Cobbs arm runs in 3 miles, with a breadth of 800 yards, where there is an indifferent summer anchorage in 13 fathoms off the narrow entrance of a shoal continuation of the arm. A swell rolls in after gales from seaward. Limestone can be obtained on the south side of the anchorage and on the shores of the shoal continuation of the arm.

Entering Cobbs arm, give Duck island a berth of 300 yards to avoid the rocks lying off it, and Red islet a berth of the same distance; and in going up keep the east end of Bacalhao island open east of Red islet until up to Tinker island, which shows as a small cone 60 feet high; from this to the anchorage there are no dangers on the north shore, and those on the south shore may be avoided by keeping North Grassy islet open north of the islands off Jacks islands.

A rock, with $1\frac{1}{2}$ feet over it, lies nearly in the center of the arm a quarter of a mile from the narrow entrance of the shoal arm. North Grassy islet, open north of the islands off Jacks island, leads north of the rock, and a vessel may anchor west of this line.

Small vessels drawing 11 feet may enter the shoal arm by keeping close to the north point of the entrance, to avoid the rocky ground running across the channel towards this point from the islet that lies in the middle of the entrance. When within the point approach the north shore and anchor in smooth water. Above the islet the deep water is on the south shore, the north being shoal and rocky.

A patch of 3 fathoms lies SE. $\frac{1}{2}$ S. easterly a mile from the summit of Jacks island, and NNE. $\frac{1}{2}$ E. $2\frac{1}{4}$ miles from Dram island; it breaks in a heavy sea.

Inner five-fathoms lies with the eastern summit of Duck island in line with the east point of Grassy islets NNW. $\frac{1}{2}$ W., and Dram island SSW. $\frac{1}{2}$ W. 3 miles.

Outer five-fathoms lies with North tickle of Change islands in line with the west side of Mile islet NE. $\frac{3}{4}$ N., and the east point of Duck island NNW. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles. These last two patches break occasionally in a heavy sea, and at such times should be avoided by keeping Dram

island a point on either side of SSW. $\frac{1}{2}$ W., or by having South-end point in line with the west side of Smoker island.

Lobster islet, S. by E. $\frac{1}{2}$ E. three-quarters of a mile from Treenail tickle, and a quarter of a mile off the nearest land, is small, 10 feet high, and foul all round for about 200 yards. At 600 yards NE. by E. is Brandies rock, awash at low water.

Milliners arm, half a mile southwest of Lobster islet, is rocky, does not afford convenient anchorage, and is open to the north.

Dram island, small and 30 feet high, lies S. by E. $1\frac{1}{2}$ miles from Lobster islet. From it shoal patches of less than 10 fathoms, with deep water between them, extend the whole distance to Slag islets.

Nine-pin arm, SW. $\frac{1}{4}$ W. a little more than 2 miles from Dram island, is full of rocks, and the east point is foul for a distance of 200 yards from it.

Currans-Green-Field, a small, low, grassy island, lies SW. $\frac{1}{2}$ W. 3 miles nearly from Dram island and SW. of Nine-pin arm. Southwest of this island is fair anchorage in 8 fathoms. A shoal extends south from the island for about 200 yards.

Dildo run, to the northward of Currans-Green-Field, is an intricate channel south of New-world island, sometimes used by small vessels bound to the Labrador coast in the spring, when from foul winds or ice it is inconvenient to take the outer route. There is at least 12 feet in this run at low water, but it has not been surveyed. Good pilots may be obtained on the outer coast between Tilton harbor, on Fogo island, and Change island harbor. The inhabitants of those parts frequent it when proceeding to Exploits river for wood.

Beaver cove, S. by E. 2 miles from Currans-Green-Field, lies NE. and SW., and is divided into two arms by a low rocky islet. The eastern arm is full of stones, and lies at the back of Beaver head; the western is 400 yards wide and 800 yards deep, with good anchorage in 3 to 6 fathoms, mud. A rock that covers at first-quarter flood lies 100 yards NE. by E. of the west point of this arm.

Beaver head, a remarkable steep bluff 180 feet high, lies NE. by N. a mile nearly from Beaver cove.

Little Beaver cove, $1\frac{1}{2}$ miles to the eastward of Beaver head, runs in SW. half a mile, with a breadth of 400 yards and depth varying from 4 to 8 fathoms, but no holding ground, and as a heavy swell sets into it from the north, it is useless as an anchorage.

The coast between Beaver head and Farewell-duck islands should not be approached by a stranger inside the line of East-garden and Indian-garden islands.

Farewell-duck islands, NE. by E. 4 miles from Beaver head, form a long, ragged promontory, terminating in a small islet just awash at high water, and Farewell reef, 600 yards long, breaking in a moderate sea. East-garden island in line with Indian-garden island clears north; the west end of Shag islets in line with the west end of Smoker island leads east; and the entrance to the shoal arm of Farewell harbor seen open of the north shore of the harbor leads south of this reef.

Indian-garden island, small, rocky, and 49 feet high, lies W. by S. a little more than $1\frac{1}{2}$ miles from the east extreme of Farewell-duck islands. A reef extends 400 yards northwestward, and off the west end is a low rocky islet.

A rock, with 3 feet water, lies SSW. $\frac{5}{8}$ of a mile, and another, with the same depth, SE. by E. 1,100 yards from Indian-garden island.

East-garden island, flat and about 40 feet high, lies NW. by N. 800 yards from Farewell-duck islands.

Garden rock, with 6 feet, lies NNE. half a mile from East-garden island. Farewell-gull island seen over the west end of the east Farewell-duck island leads east, and Beaver head open north of Indian-garden island leads north of this rock.

Farewell-gull island, S. $\frac{1}{2}$ W. $1\frac{3}{8}$ miles from the east extreme of Farewell-duck islands, lies close off Farewell head, is 100 feet above the sea, and conspicuous when seen from the north or south.

Farewell harbor, immediately north of Farewell-gull island, is open and exposed, 800 yards wide and 1,600 yards deep, with anchorage in 8 to 4 fathoms, mud. East winds blow into the bay, reaching $2\frac{1}{2}$ miles from South-end point. In continuation of the bay is a shoal arm, encumbered by bowlders, extending inland about $1\frac{1}{2}$ miles.

Dog reef, ENE. one mile from Farewell-gull island, and 1,200 yards NW. by N. of Dog bay islands, is half a mile long, NE. and SW. Indian-lookout island open north of South-end islands leads north, and the west point of Dog bay islands open west of the northwest islet off them leads west of this reef.

The west coast of Change island has a general trend N. 7 miles, is much encumbered by islands, and affords no shelter but for the small craft of the fishermen, except in Deep cove, $2\frac{1}{2}$ miles north of South-end point, which is 200 yards wide and 800 yards deep, with 6 to 3 fathoms, sand. The entrance is easily recognized, being immediately within Smoker island, and midway between Wood islands on the north and the Water Bears on the south. These latter, though they cover at high water, will generally be seen.

Smoker island, 3 miles NNW. of South-end point and three-quarters of a mile from the nearest rocks off Wood islands, is 20 feet high, small, flat, and steep-to.

A sunken rock, on which there is a depth of 9 feet, lies S. $\frac{1}{2}$ E. 450 yards from the south extreme of Smoker island.

A shoal, on which there are 3 fathoms water, lies 100 yards NW. by N. of this rock.

Clearing marks.—Ragged islets kept open north of Smoker island, bearing N. by E. $\frac{1}{2}$ E. leads north of these dangers.

Ragged islets, a mile north of Smoker island and the same distance off shore, are low, with many sunken rocks round them. Pike rock, the outer, lies WSW. $\frac{1}{2}$ W. $\frac{1}{2}$ mile from the southern Ragged islet, has 2 feet over it, and breaks in a moderate sea. South-end point in line with Smoker island leads west of it.

Shag islets are a large group, covering a space one mile NE. and SW., and half a mile wide, with a general height of 20 feet. They lie N. by W. $1\frac{1}{2}$ miles from Ragged islets, 1,200 yards from the shore, and are the most northern islets off the west coast of Change island. Mile islet is the eastern of this group.

Shag rock, with 4 feet, often breaks, and lies SW. by S. 700 yards from Shag islets. South-end point touching the east side of Smoker island leads 600 yards west, and North-end just open north of Shag islets leads the same distance north of it.

Main tickle.—Change island tickles are at the north end of Change island. Main tickle is a safe and convenient harbor, with 12 feet in the shoalest part, and may be entered from the eastward in any weather; but this entrance is difficult for a stranger to recognize, unless the houses on its shore are seen. Tobacco island, and two or three of the islands within it, being dome-shaped and 50 to 70 feet high, may help to distinguish it, while Ruth island, on the south, is about 20 feet high, and, together with those within it, generally flat.

A rock, with 12 feet, that breaks heavily, lies NE. by E. 200 yards from Ruth island. In light winds with a heavy sea it is better to pass south of Ruth island, to avoid the danger of being thrown on to this rock. Approaching from the eastward care must be taken to avoid the dangers round Black islet. The passage between Tobacco and Ruth islands is free from dangers, and after passing between the two rocky islets on the north, and Ruth island on the south, bring the points of the tickle just closed in to bear SW. by W. $\frac{1}{2}$ W., to avoid White ground on the north and Skinner rock on the south; and when the last tickle on the north is open, or Skinner cove bears SE. by S., the vessel will be past both those dangers, and may open the points of the tickle and anchor in 6 to 8 fathoms, mud. There is a rock 70 yards from the shore, with 6 feet over it, off the first houses on the north side, and a rock, awash at low water, off the west point of the first bay on the south shore.

Diamond island is the southwestern point of Main tickle. Just within Diamond island a reef extends 100 yards off shore, and at 400 yards WSW. from the north point of the entrance, and just north of the line where the points of the tickle touch, is a rock with 6 feet over it. Approaching this entrance from the northward, after rounding North-end, keep Change island look-out open of the Shag islets off North Change island SE. $\frac{1}{4}$ S., to avoid a rock that lies west of this entrance, and when Main tickle is open, bearing NE. by E., steer for it; if coming from the south, pass between Ragged and Shag islets, being careful to avoid Pipe and Shag rocks.

North tickle, close within North-end of Change island, has 3 fathoms in the entrance and 6 feet in the shoalest part; it is open to the northeast, and affords no efficient shelter.

Directions.—Coming from seaward a stranger must not take the channel between Bacalhao island and Bacalhao islet, but should pass a quarter of a mile east of the islet, steering S., to run between Kiar and Moorham reefs, to the east extreme of Duck island. When passing the latter island, bring South-end point in line with Smoker island, round the latter on either side at about 400 yards distance, and bring the west end of Shag islets in line with the west extreme of Smoker island. This mark kept on astern will lead east of Farewell reef, which will be passed when the inner basin of Farewell harbor is open south of the north side of the harbor. The southwest point of Dog islands should then be brought open west of the northwest islet off them, to clear Dog reef. There are no further dangers till Vesuvius rock, at the west entrance of Sir Charles Hamilton sound, is reached.

Vessels may go through either of the channels between Bacalhao, island and Starve head, taking care to avoid Clarke rock in the channel between the latter and Berry island.

If passing west of Herring islands, keep the east end of Berry island open east of Herring head, to clear the rock off Red islet, which will be passed when Tinker island is well open south of Red islet, and Duck island may then be steered for; whence proceed as before directed.

Cape Fogo, the southeast point of Fogo island, a bold headland 214 feet above the sea, lies WNW. $9\frac{1}{2}$ miles from the Offer Wadham light-house. Fogo island is 13 miles east and west, by 8 miles north and south, with rocky and deeply indented shores, affording, however, but indifferent harbors, except for small vessels and boats; it is surrounded by numerous rocks and islets, with many shoals between them.

Tilton harbor, $3\frac{1}{2}$ miles northwest of Cape Fogo, formed by Pigeon island and peninsula, is open to the north; it can be entered by small vessels only, as there are but 3 feet water in the entrance, over a rocky bottom. On the shores of the harbor is a considerable fishing village, which with its church is easily recognized from a short distance.

Back cove, to the southward of Pigeon peninsula, is 600 yards wide, open to the southward, and free of dangers; the bottom is rocky, with a depth of 6 fathoms.

Sandy cove, west of Tilton harbor, is 400 yards wide and open to the northeast; its south shore is bold, with 4 to 6 fathoms in the center, over a sandy bottom.

Hennings islet, 6 feet above water and 2 miles north of Tilton harbor, lies 900 yards off shore, with deep water between it and Fogo island.

Round head, the northeast point of Fogo island, 199 feet above the sea, and well described by its name, lies $6\frac{1}{2}$ miles NNW. of cape Fogo. The hills to the westward are much higher, being 339 feet above the sea, but the chasm separating them from Round head causes the latter to be conspicuous.

Joe Batts point, 2 miles W. by N. of Round head, is a low, shelving point, the extremity of a small peninsula, from the west extremity of which the coast trends S. 1 mile to Joe Batts arm, continuing a mile farther S. by E., with a breadth of nearly half a mile, but so full of rocks as to be difficult for ordinary navigation, though a flourishing fishing village is settled on its shores, and a vessel of 100 tons is annually loaded whilst moored among the rocks.

Shoal bay, in the center of the north side of Fogo island, $2\frac{1}{2}$ miles west of Joe Batts point, is three-quarters of a mile wide, 3 miles deep, and quite open to the north. Safe summer anchorage may be found in 8 to 10 fathoms on the west shore, near the head. In proceeding up the bay care must be taken to avoid approaching, in the line of their direction, the islands which run out from the center of the head of the bay and terminate in Steering island.

Bard island, at the east entrance point of Shoal bay, has a considerable village on it, but Bard cove is only a boat harbor.

Deans rock, with only 1 foot on it, and generally breaking, lies N. three-quarters of a mile from the Bard islands, and in the direct line between Joe Batts point and the entrance of Fogo harbor. Brimstone head seen through Fogo harbor entrance, bearing SW. by W., leads north, and the extreme summit of Fogo head, south of Light-house island, bearing WSW. $\frac{3}{4}$ W., leads south of this rock.

Fogo harbor lies east of a bold, rocky peninsula which forms the northwest extremity of Fogo island, and 2 miles to the westward of Shoal bay. The intervening coast is broken and rocky, with dangers extending off a distance of 200 yards, and lying in the fairway to the eastern entrance of the harbor.

The peninsula forming Fogo harbor terminates on the north in Fogo

head, a steep bluff 345 feet above the sea. On the southwest of the peninsula is Brimstone head, a perpendicular bluff 272 feet high.

In front of Fogo harbor are several islands 50 to 100 feet high, forming narrow entrances difficult of access at all times to a sailing vessel, and unapproachable with the heavy sea which rolls in during and after gales from seaward.

There are two principal channels into the harbor, the eastern, having 12 feet, and the western, 24 feet; and secure anchorage may be found, in 3 to 7 fathoms, mud.

Tides.—It is high water, full and change, in Fogo harbor at 7h. 15m. Springs rise $4\frac{1}{2}$ feet, and neaps 3 feet.

Lanes lookout.—East of the harbor is Lanes lookout, a rocky hill 385 feet above the sea, and the highest on the island; it falls steep to the northward, a short distance within the coast.

The eastern entrance is between Rags and Light-house islands. Northward of the former, at 200 yards distance, is Rags rock, and off the north point of Light-house island is Simms rock; both are under water, but break in a moderate sea.

Nanny rock, with 4 fathoms over it, lies 400 yards north of Barnes island; it breaks in a heavy sea.

Approaching from the eastward a vessel should pass outside Deans rock, with Brimstone head seen through the entrance of Fogo harbor, and when the west side of Bard island bears eastward of S. the rock will be past; then proceed parallel with the coast until Slade's west house is seen through the entrance (the house is conspicuous, and, with a flag-staff near it, is easily recognized); from this steer for the entrance, being careful not to shut the house in with the eastern land, so as to avoid Rags rock. After entering between Rags and Light-house islands, the turn to the west is very sharp, and the channel but 150 yards wide. Care must be taken not to hug Light-house island too close, as a rock with 6 feet over it extends 70 yards south of its east point. Having made the turn, keep the south point of Barnes island just shut in with Fogo head until Gappy island opens west of Light-house island; then run to the south, keeping Gappy island in the center of the Middle tickle (between Light-house and Center islands), to avoid Pilly rock on the port hand and Harbor rock on the starboard, until Barnes island shuts in with Garrison point, when anchorage may be taken up where convenient.

The western entrance is between Boatswain island and the cliffs of Fogo head; it is but 100 yards wide, and narrowed by a rock which extends half way across from Boatswain island, while a rock with 5 fathoms lies 300 yards west of the west entrance and 100 yards from the shore. In entering, Fogo head must be kept close on board, and

when a heavy sea is running there is a considerable rebound from the cliffs; having passed the entrance, the shores of the islands are bold.

Northward of Garrison point a bank with 7 feet extends half way across the channel, so that, in passing, the shore of Barnes island must be kept on board, and in turning towards the anchorage keep Western island open of Garrison point until Gappy island is seen through Middle tickle, which will clear Harbor rock, and anchorage may be taken up as convenient.

Fogo is a town of considerable importance, being the depot for the surrounding fishing districts.

Pigeon rock, with 12 feet, lies 5 miles from the nearest part of the east side of Fogo island, with Western head seen over Bowling pond head, SW. $\frac{3}{4}$ S., and the summits of Joe Batts point open of Round head, W.

The Barracks, a group of islands and rocks covering a space one mile in diameter, lie $4\frac{1}{2}$ miles NE. by E. of Round head; the principal island is on the northwest, and is 25 feet above the sea.

Inspector rock, with 3 fathoms water, lies SE. $\frac{3}{4}$ E. $1\frac{1}{2}$ miles from the south islet of the Barracks.

Pigeon ledge, with two heads of 5 fathoms, a third of a mile NW. by N. and SE. by S. of each other, lies east a mile from the largest islet of the Barracks.

Lanes rocks lie between the Barracks and Round head. The east rock, with 12 feet, lies with the east point of Copper island in line with cape Fogo, and the nearest part of the Barracks NE. by N. $1\frac{1}{4}$ miles.

The west rock, with 3 fathoms, is $1\frac{1}{4}$ miles WSW. from the east rock. There are 12 fathoms between them, and a deep channel $2\frac{1}{2}$ miles wide between the west rock and Round head, the nearest point of Fogo island. From this rock Round head bears WSW. and cape Fogo S. by E. $\frac{3}{4}$ E., distant $6\frac{1}{2}$ miles.

Drovers rock, small, and awash at high water, lies N. by W. $2\frac{1}{2}$ miles from Round head.

Snap rock, awash at low water, is the most dangerous rock in this neighborhood, from its isolation and distance from the land, being situated NE. $\frac{3}{4}$ N., distant $18\frac{1}{2}$ miles from cape Fogo, ENE. $\frac{3}{4}$ E. $15\frac{3}{4}$ miles from Little Fogo islands, and WNW. $\frac{1}{4}$ W. $22\frac{1}{2}$ miles from Funk island.

Ireland rocks, generally breaking in three separate heads, with 30 to 70 fathoms between and close around them, cover a space of three-quarters of a mile E. and W.; they lie about $3\frac{3}{4}$ miles to the northward of the Barracks, and form the northeastern extreme of a belt of islands and rocks which, with an average breadth of 2 miles, run NE. by E. and

SW. by W. for about 14 miles off the north coast of Fogo; a navigable channel lies between this belt and the coast and deep water-channels are found among the islands and rocks, but for most of these local knowledge is required.

Bishop islet, small, and 10 feet above the sea, is the eastern island in this belt; from it, shoal ground extends a mile to the north and half a mile to the eastward, leaving a clear channel a mile wide between it and Ireland rocks.

Little Fogo islands are a group of islets, the eastern being the highest, and 136 feet above the sea; on the western islet of the main group a few fishermen live, who occupy themselves during the summer at the cod-fishery, and in winter and spring sealing.

Turr islands form a group to the northwestward of Little Fogo islands, the highest being 194 feet above the sea.

Storehouse islands, 140 feet high, lie southwest one mile from Turr islands, with a clear channel half a mile wide between the two groups; these two groups of islands are the highest of the belt, and, from their isolation, the most conspicuous. To run through this channel and insure being clear of Lots rock off Turr islands, keep Round head on Fogo island open west of Mile islet. The islets off the highest of the Storehouse islands are steep-to; when past them care must be taken to give Mile islet a berth of half a mile, on account of the shoals which extend 600 yards off it.

Gappy island, $2\frac{1}{2}$ miles N. from the entrance of Fogo harbor and $4\frac{1}{2}$ miles southwestward of Storehouse islands, is next conspicuous, being 83 feet high; the intervening groups, namely, Seals nest, Long island, East Countryman, West Countryman, and Middle islets, are from 10 to 30 feet above the sea.

Brogy ledge, about one mile south of the Seals nest group, has 4 fathoms over it.

Justigan and Rusty rocks, lying to the southwestward of Brogy ledge, have 3 and 4 feet over them. Between these three dangers and Deans rock is a channel a mile wide. Brimstone head seen through the entrance to Fogo harbor, bearing SW. by W., leads south; the west extreme of Storehouse islands, open east of Seals nest islands, leads east; and West Countryman, bearing NNW. $\frac{1}{2}$ W. leads west of them.

Harvey rock, with 3 feet, lies S. $\frac{3}{4}$ E. distant half a mile from Gappy island.

Stone island, the western island of the belt, is small, 12 feet above the sea, and separated by a clear channel $1\frac{1}{2}$ miles wide from Gappy island.

Penny rock, with 6 feet, lies 800 yards southwest of Stone island; between it and Sunny ledge is a clear channel a mile wide.

Sunny ledge, with 4 fathoms, lies $\frac{2}{3}$ of a mile NW. by N. of Barnes island.

Fogo rock, with 6 feet, lies SW. by W. $\frac{1}{2}$ W. a mile from Sunny ledge.

Monkey rock, with 9 feet over, it lies to SW. of Fogo rock.

Princes Horney shoal has 18 feet on it. These last three rocks, although there is deep water between them, must for ordinary navigation be considered as one danger; they cover a space of half a mile NNE. and SSW., and are separated from Fogo head by a channel half a mile wide.

Old Horney shoal, with 4 fathoms, is a quarter of a mile long north and south, and lies about three-quarters of a mile to the westward of Princes Horney.

Hare bay head, seen half way between Pound and Stone islets, off Fogo head, leads east of Fogo rock. Lanes look-out, open east of Barnes island, leads north of Fogo rock.

Island harbor head, open of Hare bay head, leads between Princes Horney and Old Horney shoals.

North point of Lighthouse island, shut in with Barnes island, leads south of Princes Horney and Old Horney shoals.

Lanes look-out, in line with the west entrance to Fogo harbor, leads north of Old Horney shoals.

Black islet, small and 12 feet above the sea, lies WSW. $1\frac{1}{4}$ miles from Brimstone head. A patch, with 4 fathoms, lies $\frac{1}{2}$ mile S. by W. of Black islet.

Old Roger rock, with 3 feet, lies 1,200 yards NE. by N. of Black islet, and at 300 yards on the same bearing from the islet is Young Roger rock, with 6 feet over it.

North Brandy rock, awash at low water, lies 400 yards W. from Black islet.

South Brandy rock, awash at low water, lies 400 yards SW. by S. from Black islet.

Shoal bay rock, with 3 fathoms, lies WSW. $\frac{3}{4}$ W. from Black islet.

The dangers around Black islet run in a NNE. and SSW. direction, the island being about the center. To clear them: Indian-look-out-island, just open of Hare bay head, leads east; Durham hill, shut in with Brimstone head, leads north; Watch island open, and Hare islands just shut in with the east extreme of Change island, lead west of Shoal bay rock.

Current.—A current running from the west splits about 2 miles off Fogo head; the main branch sets close along the north shore of Fogo island, and amongst the rocks and islands around it, from a half to $1\frac{1}{2}$ knots; it is much influenced by the wind, being accelerated by northerly and retarded by southerly winds, while before easterly gales it sometimes runs to the west. This current, after passing Round head, takes the direction of the coast, and influenced by the tidal stream, the ebb accelerating and the flood retarding it, but only occasionally at spring tides stopping its southerly course entirely.

The western branch of this current runs between Change and Fogo islands at about half a knot an hour, but is lost before arriving at Stag harbor tickle.

The coast from Cape Fogo to Seldom-come-by harbor, trends SW. by W. $\frac{1}{2}$ W. 7 miles; it is bold and rocky, and indented by three coves. Cape, Kippin, and Wild coves; they afford no shelter.

Clam rock, with 9 fathoms water, lies NNW. $\frac{1}{4}$ W. 7 miles from Offer Wadham light-house and NE. by E. $\frac{3}{4}$ E. from the south extreme of Cape Fogo.

Pinnacle rock, with 10 fathoms, lies with Cape Fogo in line with Round head NW. $\frac{3}{4}$ N. 2 miles from Cape Fogo, and N. by E. 5 miles nearly from the summit of Copper island.

Western head rock, with 3 fathoms, lies SE. by S. three-quarters of a mile from Western head, the next headline to Cape Fogo. Burnt point well open clears the rock.

Seldom-Come-by harbor is the first safe anchorage north of Greens pond, from which it is distant 50 miles; it is consequently a great stopping place for the Labrador fishing fleet on their way north, when detained by foul wind or ice from prosecuting their voyage; in the month of June, under either of these circumstances, it is often crowded with brigs of 150 tons, and smaller vessels with their closely packed living freight of fishermen, women and children; and again in the fall it is much frequented, though not by such large numbers, the prevailing winds being more favorable for the return southern voyage.

The entrance is three-quarters of a mile wide between Burnt point on the east, and Cann islands and Black reef on the west. Shoal water extends 300 yards off Burnt point, but with this exception there are no dangers. Having advanced up the bay so as to have the inner harbor on the west side open, anchorage will be found in 6 fathoms, mud, over a space a quarter of a mile in diameter. The inner harbor is 200 yards wide by 600 yards long, with a depth of 12 feet. There is a considerable village around the shores of the harbor and bay, but no supplies can be obtained, except water.

Light.—From a light-house on the summit of Cann islands, a *fixed*

white light is exhibited from an elevation of 85 feet above the sea, that should be visible in clear weather from a distance of 12 miles.

Tides.—It is high water, full and change, in Seldom-come-by harbor at 7h. 13m. Springs rise $4\frac{1}{2}$ feet, and neaps 3 feet.

Stag harbor tickle.—The channel southward of Fogo island, between it and the main land, is divided by the Indian islands and their adjacent islets; the northern channel between these islands and Fogo, is Stag harbor tickle, the southern is Sir Charles Hamilton sound. The former, though narrow and intricate, is preferred by coasting vessels.

Little Seldom-come-by harbor, lying northwest of Cann islands, affords good summer anchorage in 6 to 10 fathoms, mud; there are no dangers in approaching it, except the islets west of Cann islands; from these, foul ground extends 300 yards.

Stag harbor, on the north side of Stag harbor tickle, and east of South point, is 200 yards wide, and runs generally WNW. for three-quarters of a mile, the depth shoaling gradually from 5 fathoms to the mud and bowlder banks at the head; being open to the southeast it does not afford convenient shelter.

Grandfather island is the eastern continuation of the Indian islands, being separated from them by a rocky channel one mile wide; the island is low and flat, and has a smaller islet 600 yards north of it, from which a reef extends E. by N. nearly half a mile; between this islet and Cann islands is the entrance to Stag harbor tickle, $2\frac{1}{4}$ miles wide. The north shore of the west Indian island, which forms the south side of the tickle, is rocky and foul for 800 yards off it.

Indian island harbor lies between the east and west Indian islands; its entrance is $2\frac{1}{2}$ miles W. $\frac{1}{2}$ N. of Little Grandfather island, and may be recognized by Blundons island, which is conspicuous on the north, and a small white church on the south; the harbor is a mile long E. and W., and a quarter of a mile wide, but the water being shoal with large bowlders for a distance of 300 yards from the south shore, Blundons island and adjacent coast must, therefore, be kept close on board; summer anchorage will be found for small vessels in 2 fathoms, mud.

Indian-lookout island is a remarkable cone, 127 feet high, lying $1\frac{1}{2}$ miles west of Stag harbor tickle.

Directions.—A bar, with from 4 to 9 fathoms, connects Cann islands with the northeast point of the Indian islands; in crossing this bar care must be taken not to come within half a mile of the northeast point of the west Indian island, and to keep Indian-lookout island shut in with South point on Fogo island, until the east side of Cob cove is in line with the west point of Stag harbor, when Indian-lookout island must be brought open; in rounding South point, keep Observatory hill on the

western shore of Seldom-come-by harbor well open of South point, until Rogers point is well open west of South point, which will clear the South rock; but a good mark for running through the tickle so as to avoid the South rock on the north hand and the shoals off Indian island on the south, is to have the north extreme of Mouse island, the western islet of Cann islands, in line with the first rise in the hills east of Seldom-come-by, bearing NE. by E. $\frac{1}{2}$ E.

Having passed South point, a NW. by W. $\frac{1}{2}$ W. course for $1\frac{1}{2}$ miles will lead past Rogers point, and northeast of Indian-lookout island; in this channel there are no dangers which are not visible, except a rock awash at low water, which in a very smooth sea might possibly not be seen; it lies NW. by N. 400 yards from the northeast islet of the Indian-lookout group.

Watch rock, which breaks in a moderate sea, lies $1\frac{1}{2}$ miles NNW. from Rogers point, and in mid-channel between Watch and Fogo islands. Nuggin hill, on the mainland, open east or west of Indian-lookout island, leads east or west of it; the island west of Watch island open north or south of Watch island leads north or south of it.

Island harbor head is a small but remarkable bluff, 101 feet high, on the west coast of Fogo island, $3\frac{1}{2}$ miles north of Indian-lookout island; there is an excellent boat harbor on its southeast side.

Hare bay head is 283 feet above the sea, and S. by W. $\frac{1}{2}$ W. 2 miles from Brimstone head; between them is Hare bay, easily recognized by the islands forming the south side of its entrance, one of which is dome shaped; a rock, with 9 feet, lies N. 400 yards from the end of these islands, leaving a channel of one-quarter of a mile into the harbor. Change lookout on Change island, kept open of Hare bay head, until Burnt bluff on the west side of the bay comes open south of the island, clears the rock. The bay is 2 miles deep, and good anchorage will be found from half-way up, in from 12 to 4 fathoms, mud; the west shore is rocky, but the east clear of danger. A snug anchorage for a small vessel in 2 fathoms will be found in a basin formed between the islands on the western side of the bay, and the mainland of Fogo island.

Directions.—North of Watch rock there are no dangers on the Fogo island shore, but Change island is broken, and rocky for a quarter of a mile off shore; after passing Hare bay head, Indian-lookout island kept just open of the head will lead clear out to sea east of the Black islet group; and, shutting in Hare island with the east side of Change island, and keeping Island harbor head open of the northeast rock off Tobacco islet, will lead between the Black islet group and Sleepy ledge off Change island.

Between Indian-lookout island and the islet south of it, is a channel 600 yards wide; after passing the islet east of Indian-lookout island, bring the south point of Woody island open of Indian-lookout island,

to avoid a 3-fathom patch which lies southeast one-fourth of a mile from the latter island; from this there is a good channel to the south point of Change island, the dangers being all to the southward, off the Indian and Dog bay islands. A safe course to pursue, is to pass mid-channel between Woody island and South-end islets, or south of those islets by having South point just open of Indian-lookout island, and when past them, bring Indian-lookout island open north of them, which will lead north of a dangerous reef, which lies 1,200 yards N. by W. of the Dog bay islands.

Sir Charles Hamilton sound.—The northern shore of Sir Charles Hamilton sound is formed by Grandfather island, the Indian islands, and groups which extend from them towards the Dog bay islands, the southwestern being the Goose islands, lying WSW. $\frac{1}{2}$ W. $7\frac{1}{2}$ miles from Grandfather island; the intervening space is occupied by dangers, and should not be approached within half a mile, or in less water than 10 fathoms. The southern coast of the sound, being part of the main land of Newfoundland, runs SW. by W. for 5 miles from Ladle island to Rocky point, the shore being broken and rocky, with foul ground extending off half a mile. A rock lies W. distant 400 yards from Ladle island.

Rocky bay.—The entrance to Rocky bay is 6 miles wide between Rocky point and Grass islands, but is broken into four channels by White, Green, and Noggin islands; between Green and Noggin islands the passage is foul, with $2\frac{1}{2}$ fathoms over a bottom strewed with bowlders. Between Noggin and Grass islands, and also between Green and White islands, the channels are clear.

The inner waters of the bay are divided into three arms, the Southwest, Middle, and Northwest; of these the Southwest and Middle arms are shallow and encumbered with islets and bowlders.

Noggin hill, on the west side of Rocky bay, wooded, and 251 feet high, is conspicuous from its being surrounded by low land.

The Northwest arm has two rocks in its center, a few feet below the water, also a patch of $3\frac{1}{2}$ fathoms, midway between Noggin island and Noggin hill; in going up this arm keep near its western shore, with the upper points of the eastern shore open, so as to avoid the rocks in the center; and when White island is shut in with the outer east point of the arm, they will be past, and anchorage may be had as convenient in 6 to 4 fathoms, mud.

Gander bay, westward of Rocky bay, runs inland south by west for 13 miles, there receiving the waters of Gander brook, a considerable fresh-water stream.

Dog peak is a remarkable sharp peak, 176 feet above the sea, on the west side of Gander bay; the land to the northward is low, terminating

in Dog point, off which are the Dog islands, low, rocky, and lying $5\frac{1}{2}$ miles W. by N. from Grass islands; at half that distance is Gander island, which is narrow, and with Duck island southwest of it is 2 miles long NE. by N. and SW. by S.; between this and Dog point is the entrance to Gander bay.

Fox island, on the west side of the bay, lying a quarter of a mile from the shore, and 5 miles within Dog point, is of moderate height, and easily distinguished; between it and Dog point the coast recedes to the foot of Dog peak, forming Shoal bay, in which are numerous islets and rocks extending half a mile beyond the line of the points of the bay. Farewell head, the western point of Sir Charles Hamilton sound, open of Dog point, leads outside them.

Beaver hill, on the eastern shore of Gander bay, directly opposite Fox island, is 251 feet above the sea; north of it are two islands; one close to the shore and not easily distinguished; the outer, Storehouse island, is flat, 29 feet high, and half a mile from the shore; shoal water extends three-quarters of a mile SW. by W. from the island.

Robinson rock, awash at low water, the shoalest part of this foul ground, lies WSW. $\frac{1}{2}$ W. 900 yards from the north point of Storehouse island. The west side of Gander island, open west of Duck island, leads outside Robinson rock; Storehouse island bearing E. by S., leads east of it; and Fox island bearing W. by N., leads west of it.

The reach above Fox island is 3 miles long, and $2\frac{1}{2}$ miles wide, terminating in Bussey point, a low promontory on the western shore; the center of this reach is occupied by shoals having 15 feet over them, lying in the direct line between Fox island and Bussey point, and covering a space $1\frac{1}{2}$ miles long by a quarter of a mile wide. The point next above Bussey point, open of it, leads eastward of the shoal. The lead is a good guide in this reach, and also up to the head of the bay. A patch of $3\frac{1}{2}$ fathoms lies 800 yards E. by S. of the point next above Bussey point.

Clark point is on the western shore, $3\frac{1}{2}$ miles above Bussey point; abreast of it the bay is a quarter of a mile wide, with a depth of three fathoms, and the same depth is found off Salt island on the eastern shore, 600 yards above Clark point; from this island to the mouth of Gander brook is a distance of $1\frac{1}{2}$ miles. The brook is from 200 to 300 yards wide, and much encumbered by bowlders.

The reach from Bussey point to Clark point may be navigated by the lead. When standing towards the eastern shore, Storehouse island must be kept open of Beaver point, until past the point next above Bussey point, so as to clear a long shoal, which stretches three-quarters of a mile off a low point on that coast. The eye is the best guide for tacking off the western shore; when advanced so far up as to have $3\frac{1}{2}$ fathoms in mid-channel, that depth will be found to extend well across to both shores.

Anchorage.—Safe anchorage will be found in all parts of the bay above Fox island, on bottom generally of mud.

* **Tides.**—The ebb at Clark point runs 2 knots at springs, with a very weak flood for about three hours; at neaps, there is no flood stream.

Farewell head, 243 feet above the sea, is the western point of Sir Charles Hamilton sound, and the termination of the northern shore of Dog bay, which lies between it and Dog islands.

Dog bay runs inland southwest 7 miles; immediately off its entrance, are Dog bay islands, which extend NNW. and SSE. $2\frac{3}{4}$ miles; consisting of three main islands and numerous rocky islets; their general elevation is from 20 to 40 feet, except at the north end of the northern island where a hill rises 133 feet.

Directions.—When proceeding through the channel between Farewell head and Dog bay islands, Dog peak in line with Steering island (which is white, with a grass-covered summit), bearing SW. $\frac{1}{4}$ W., leads northwest of the reef lying 1,200 yards north of Dog bay islands.

Steering island, in the center of the entrance to Dog bay, is small, 27 feet high, and steep-to.

Charley island lies WSW., distant $\frac{2}{3}$ of a mile from Steering island.

Vesuvius rock, awash at low water, lies NE. by E. $\frac{3}{4}$ E. three-quarters of a mile from Steering island, and the same distance from the nearest shore of Dog bay islands. Half of Goose island kept open south of Dog bay islands, until Charley island is well open north of Steering island, leads west of it. Between the rock and Dog bay islands there is deep water, but no mark can be given to pass on this side of the rock.

Gulnare rock, with less than 6 feet on it, lies SE. $\frac{1}{4}$ S. 1,400 yards from Steering island, and at the same distance N. by E. from the nearest rock of Dog islands. Noggin hill kept open of Gander island, until the south shore of Dog bay opens northward of the most northern of the Dog islands, leads eastward of this rock.

A vessel entering Dog bay may pass on either side of Steering island, observing the marks as above, to clear Vesuvius and Gulnare rocks; in mid-channel there are no dangers.

Directions.—Working up Dog bay, when standing towards the north shore, keep the most northern islet of Dog bay islands open southward of Charley island; when standing towards Dog point and islands, keep Steering island well open northward of the northern islet of the Dog islands, until well up towards the south shore, when this mark must be changed for the south point of Hodder islands, at the head of the bay, seen between Double and Ship islets; having passed Double islet the lead and eye are the best guides.

Above Hodder islands a considerable stream empties on the north shore, and a shoal arm continues 2 miles farther in the direction of the bay.

Anchorage may be obtained above Double islet, in from 8 to 4 fathoms, mud, between the islands and the north shore; between them and the south shore the bottom is foul.

The Wadham islands are seven in number, and with the adjacent dangers cover a space of 11 miles E. by N. and W. by S., they are separated on the north from Fogo island by a channel 5 miles wide free of dangers. On the southwest they are nearly connected by rocks and reefs with the mainland north of the Penguin islands.

Light.—On the most eastern island, called Offer Wadham, a *fixed* white light is exhibited at an elevation of 100 feet above the sea, that should be visible from a distance of 12 miles in clear weather.

Small island, lying three-quarters of a mile southwestward of Offer Wadham island, is low and flat, 25 feet above the sea.

Coleman island, the next, is small, with two remarkable cliffs 40 feet high, rising one at the northern, and the other at the southern extremity of the island.

Peckford island is the largest and middle island of the group; at the north end is a sharp peak 86 feet high.

White island, lying to the northwestward of Peckford island, is remarkably barren, nearly flat topped, 99 feet above the sea, and of a white color.

Duck island is generally low and rocky, with a small peak in its center 69 feet above the sea; it lies to the southwestward of White island.

Copper island, the most western, is the highest and most conspicuous of the group, 192 feet above the sea.

E. S. E. ground is a shoal with 9 feet water, lying nearly 2 miles E. by S. of Offer Wadham island; from it the peak of Peckford island is in line with the summit of the north cliff of Coleman island SW. by W. $\frac{3}{4}$ W., and Offer Wadham light-house bears W. by N.

Tom Cod is a small rock, with 12 feet; the marks for it are, the peak of Peckford island in line with the north cliff of Coleman island SW. by W. $\frac{3}{4}$ W., and Offer Wadham light-house bearing NW. by N.

S. S. W. rock is always to be seen, being awash at high water; it lies 2 miles SSE. from Small island, and E. by S. from Coleman island.

East rock, with 10 fathoms, lies NE. by E. $\frac{3}{4}$ E. 2 miles from Offer Wadham light-house.

Outer East rock, with 12 fathoms, lies E. by N. 5 miles from Offer Wadham light-house.

White Clam rock, with 9 fathoms, lies to the northward of the group, nearly 4 miles NNE. $\frac{1}{2}$ E. from copper island summit with cape Fogo and Round head on Fogo island, in line, bearing NW. $\frac{1}{2}$ N.

Frampton rock, with 3 fathoms, lies W. by N. $2\frac{1}{2}$ miles from Copper island summit.

Fishing rock, with 9 fathoms, lies WNW. $\frac{1}{2}$ W. 4 miles from Copper island summit.

Channels amongst the Wadham islands.—The channel between Offer Wadham and Small islands is 1,200 yards wide, and free from danger; in approaching from the southward be careful to avoid Tom Cod rock by keeping Offer Wadham light-house bearing north of NW. by N.

Between Small island and Coleman island the channel is $1\frac{1}{2}$ miles wide, with a bank stretching more than half way across from the former to the latter, on its shoalest part is 4 fathoms, situated exactly in mid-channel. Approaching from the southward, be careful to avoid SSW. rock, and keep near Coleman island.

Between Coleman and Peckford islands the channel is so incumbered by dangers as to be useless for navigation.

The channels northwest of Peckford island are free from hidden dangers, except a 2-fathom patch, lying 400 yards from the north side of the island.

Between Peckford island and the mainland there are several deep-water channels; the widest is that nearest the main, immediately north of Penguin islands and Edwards rock, but for this no leading mark can be given; the only channel for which a natural leading mark exists, is that between Scrub reef and Schoolroom rock; this mark is the south points of Copper and Duck islands in line. Copper island from its greater height can be seen over Duck island.

Funk island, the summit of which is in latitude $49^{\circ} 45' 29''$ N., longitude $53^{\circ} 10' 49''$ W., lies about 25 miles ENE. from Offer Wadham island; it is 800 yards long, NE. by E. and SW. by W., by 400 yards wide, 46 feet high and nearly flat, with scanty vegetation, peat on the highest part.

Landing can be effected in calm weather at Gannet head on the southwest coast, and on the north side of Indian gulch, which is south of the eastern or escape point, but not at the head of this gulch, as at all times the scend of the sea would make it unsafe for a boat in such narrow waters; on the north coast 200 yards west of escape point is a steep cliff, up and down which the sea rises and falls without breaking, so that even in a high sea landing may be effected on the Bench, which is

a shelf 4 feet wide, sloping up the cliff, and quickly narrowing to a few inches broad, but keeping that breadth for only 10 or 12 feet, after which the ascent is steep with good holding.

Two islets lie off the west point of Funk island, at the distances of 1,200 and 600 yards; besides these islets there are several rocky spots, extending half a mile off the north side of the island, which are generally breaking.

Directions.—A stranger when approaching Funk island should give it a berth of 3 miles, remembering to be sure of his position when the island bears NE. by E. to avoid Brenton rock, a shoal of 5 fathoms lying SW. by W. from Funk island, distant $5\frac{1}{2}$ miles; the eastern extremity is steep-to, and may be passed on a N. $\frac{1}{2}$ E. and S. $\frac{1}{2}$ W. course at any convenient distance less than a mile, thus steering between it and the patches lying $1\frac{1}{2}$ miles off.

Caution.—When south of Funk island, be careful not to bring it to bear to the east of N. $\frac{1}{2}$ E., and when north of the island, not to the south of S. $\frac{1}{2}$ W., so as to avoid the rocks which lie west of those bearings.

In addition to Brenton rock, the island may be said to be surrounded by sunken dangers at distances varying from $2\frac{3}{4}$ miles to half a mile, a knowledge of which can only be obtained from the chart. Although on some of these ledges a depth of as much as 15 fathoms is found, yet, through the sudden change in the depth of water (60 fathoms being the general depth in the vicinity of the island), the sea breaks heavily over them in bad weather.

Ladle island, lying SW. $\frac{3}{4}$ S. $4\frac{1}{2}$ miles from Copper island, is 34 feet above the sea, and forms the northwest extreme of the almost straight, low, and dangerous coast which terminates at cape Freels.

Ragged harbor is $2\frac{1}{2}$ miles southeastward of Ladle island; in its entrance is an islet 6 feet above water, and northwestward of the islet are two rocks with less than 6 feet on them, with the east point of Ladle island touching Ragged point, the northern point of entrance.

Directions.—When to the northward of these rocks, bring the fall of a ridge of high land in line with White point, the first point in on north shore, bearing SW. $\frac{1}{2}$ S., and anchor off White point in 4 fathoms, mud; this would make a good temporary anchorage for small vessels bound south and detained by a southwest gale, instead of bearing up for Seldom-come-by harbor on Fogo island.

Penguin islands are two low, flat islets about 20 feet above the sea; the northern lies SSE. 5 miles from Peckford island, the space between being much encumbered with rocks and shoal patches, with two narrow channels through them. Northwest of the islets, between them and

Ragged harbor, lie the extensive patches known as Edwards reef, on which is a group of small rocks about 10 feet high.

From Penguin islands to cape Freels the trend of coast is SE. $\frac{1}{2}$ E. 17 miles; the shore is generally low and the country flat, so that when a short distance off there is nothing remarkable by which to distinguish one part from another.

Anchorage.—In Deadman bay, $6\frac{1}{2}$ miles from South Penguin island, there is fair anchorage in 9 fathoms during the summer, with shelter from northwest and southwest winds in the northwest corner under Deadman point; the holding ground is good, but a shoal of 3 fathoms lies S. by E. half a mile from Deadman point.

Deadman rock, with 15 feet over it, lies $1\frac{1}{2}$ miles from Deadman point, with Red islet in Deadman bay in line with Deadman point S. by E. and the north point of Outer Cat island, off the Southern point of the bay, SE. $\frac{1}{2}$ E.

Cat harbor, lying to the southeastward of Deadman bay, is small and dangerous, and only available for small vessels in fine weather; its position may easily be recognized by Outer Cat island, which projects nearly 2 miles from the line of the coast of Cat harbor and Deadman bay, and separates the two. A 6-fathom bank off Cat harbor, and several of from 5 to 9 fathoms off Deadman bay, break in bad weather.

Cape Freels, the northern point of the great bay of Bonavista, is low and rocky, consisting of three points, called North, Middle and South bills; within them the land rises to an elevation of 183 feet, known as Cape ridge.

Gull island lies $1\frac{1}{2}$ miles E. from the South bill: there is deep water round this island, but NW. by W. distant half a mile is Gull rock, with 9 feet over it. About half a mile southwest from Gull island commences rocky ground, which extends along the coast for about 13 miles to the southwest, as far as Shoe point; on this rock-encumbered shore there are no anchorages that a stranger should attempt until south of Copper island, which lies off Shoe point, when by the aid of a chart anchorage may be found to the westward of Green pond island.

Between Gull island and North bill there are many off-lying dangers, the outer of which, Brandies islet and reef, stretches off about half a mile from Middle bill, with shoal water and less than 10 fathoms for a distance of $1\frac{1}{2}$ miles; from this there are no dangers in fine weather until past Cat harbor and Deadman bay.

The dangers about cape Freels cover a triangular area, having for its base 13 miles of the coast from Shoe point to cape Freels, and its apex at Stinking banks, which lie about 6 miles from this line of coast; the whole of this space is encumbered with shoals, interspersed with low rocky islets, which make it dangerous of approach, especially during foggy weather, though in a moderate sea fishermen with local ex-

perience feel safe, from the fact that almost all the dangers show themselves; but in a heavy swell, when the deeper shoals with 7 to 10 fathoms over them are breaking, and the whole sea is confused, nothing but the most perfect knowledge and great experience would justify this portion of the coast being approached.

With the aid of a chart and the following remarks and directions, to be used during moderate weather, such as often prevails in summer when fishing vessels are proceeding to the Labrador, sufficient local knowledge may easily be acquired for the ordinary purposes of navigation, and a comparative stranger enabled to use with confidence the outer channels between Flowers and Stinking islands, and northward, inside Middle and Charge rocks.

Pincher island lies 4 miles SW. by S. of Gull island; a square church on the highest part of the island makes it easy to be recognized. To the northward of the island is Pinchers bight, which affords safe anchorage in summer for small vessels in $2\frac{1}{2}$ to 3 fathoms.

Pouch island, which lies about $1\frac{3}{4}$ miles to the southward of Pincher island, is 80 feet high and about half a mile long, with several islets and reefs round it; three-quarters of a mile from its east side lie East reefs, the outer rock of which dries, and is consequently always easily recognized.

The entrance to Pinchers bight from the southward is a mile wide, between East reefs and Margery rock, which has less than 6 feet over it and generally breaks. Having recognized Pincher island church, steer for it, and keep it well open east of Hincks islet (which is 12 feet high, lying three-quarters of a mile N. by E. of Pouch island), and having passed the outer rock of East reef, bring it in line with the east end of Flowers island, a large island southward of Pouch island, and steer with it bearing S. for $1\frac{1}{4}$ miles, until Bundells Gaze, a remarkable granite lump on the main land, is in line with the outer rocks north of Pincher island, named Pound rocks, NW. $\frac{1}{2}$ W., then steer on this line for $1\frac{3}{4}$ miles, until Pincher island church bears SW. by W., when sheer out to pass Pound rocks, between which and the dangers to the northward the channel is 800 yards wide; having passed them, anchor when convenient.

Flowers islands are two in number, with some small islets close off them to the northward; the western is the largest and highest, 103 feet above the sea; together they cover an area half a mile in diameter; a straight narrow channel, in which the few resident fishermen secure their boats, runs NW. by W. and SE. by E. between the islands.

Swains islands lie off the mainland about 4 miles southwest of Pincher island; on them is a fishing village with a conspicuous square church painted white, with a dark roof. Some sealing vessels are laid up during summer in the channel nearest the mainland; the entrance

to this channel or harbor is from the southward, but no written remarks can be given that would be of service.

Butterfly islands are several narrow rocky islets, lying a little more than a mile SW. by W. of Flowers islands; they are 500 yards long, W. and E., the western and highest being 30 feet above the sea; north of them are two low rocks extending off a distance of 200 yards.

East Twin rock has 13 feet over it; it lies W. $\frac{1}{2}$ N. 1,200 yards from the Butterfly islands.

West Twin rock has 12 feet over it; it lies W. $\frac{1}{2}$ N. 900 yards from East Twin, and a mile distant on the same bearing from Butterfly islands.

Black reef is small, about 10 feet high, 800 yards N. by W. of Butterfly islands, and about one mile WSW. $\frac{3}{4}$ W. from the peak of Flowers islands.

Three rocks and Jacobs ground lie a mile southward of Flowers islands, covering a space nearly a mile in diameter, with several shoal heads, with from 9 feet to 5 fathoms over them, and deep water amongst them.

Shoe point, in line with the north side of Copper island SW. by W. $\frac{1}{2}$ W. leads south of them; Shoe point, in line with the south side of Newell island, an island lying northward of Copper island SW. $\frac{1}{4}$ W. leads northward of them; while Pouch island summit, in line with the east side of Flowers island NW. $\frac{3}{4}$ N. leads to the eastward; and the main portion of Pouch island, open westward of Flowers island N. $\frac{1}{2}$ W. leads west of them.

Stinking islands form the outermost of the low rocky islets which incumber the coast between cape Freels and Shoe point; they are two in number, about 400 yards apart, 19 and 22 feet high, and lie $5\frac{1}{2}$ miles SSE. $\frac{1}{4}$ E. from Gull island. **A rock** with 6 feet lies about half a mile to the southwestward, and between them and Flowers islands lie two rocks, named Bleak and Stevensons islets, the former 8 feet, the latter 14 feet above the sea.

Light.—An *intermittent light*, of the 4th order, is exhibited from an iron light-tower, rising from the center of a *square flat-roofed* building (the keeper's dwelling), painted in *alternate horizontal red and white bands*. The focal plane of the light is 74 feet above sea-level, and the light is visible in clear weather from a distance of 10 miles. The light appears *bright* for periods of 11 *seconds*, divided by intervals of 9 *seconds* of darkness.

The apparatus is dioptric.

Position: Latitude, $49^{\circ} 10' 26''$ N.; longitude, $53^{\circ} 21' 21''$ W.

Parkers ground.—From Jacobs ground shoal patches of 10 fathoms

extend NE. by E. to the Parkers ground, on which is 9 fathoms, with Flowers islands summit W. $\frac{1}{4}$ S. $4\frac{1}{4}$ miles, and Outer Stinking islands N. by W. $1\frac{3}{4}$ miles.

Stinking banks lie about $2\frac{1}{2}$ miles NE. by E. of Stinking islands with a depth of 12 to 16 fathoms between; they cover a space of $1\frac{1}{2}$ miles NE. by SW. by three-quarters of a mile broad, with patches of 7 to 9 fathoms; from the outer patch of 7 fathoms, the outer Stinking island bears SW. by W. $\frac{1}{2}$ W. 3 miles, and Gull island NW. by W. $6\frac{1}{2}$ miles.

Middle rock, awash at low water, is always breaking; it lies N. $\frac{1}{2}$ W. distant $1\frac{3}{4}$ miles from the inner Stinking island.

Charge rock, with only 4 feet, generally breaks; from it Gull island bears WNW. distant $2\frac{1}{2}$ miles, and Middle rock in line with the west end of Stinking island S. 2 miles.

Norris rock, with 5 fathoms over it, lies ESE. distant $1\frac{1}{4}$ miles from Gull island, with Charge rock bearing ESE. $1\frac{1}{4}$ miles.

Green's pond island, lying about $2\frac{1}{2}$ miles northeast of Shoe point, is 171 feet above the sea, and a mile in diameter, presenting a nearly flat summit; from it a chain of islets extends SE. by S. $1\frac{1}{4}$ miles, without navigable channels between them; the southern are Copper, Pigeon, and Horse islands, which are almost connected. Copper island, the most southern of the group, rises to a peak 115 feet high, and has lying to the southward at 400 yards distant, Black rocks and Black reef, which are steep-to, the water deepening quickly to 100 fathoms. NE. 300 yards from Horse island is Horse rock, with less than 6 feet over it; and SW. by W. 300 yards of Copper island is Herring rock, with 12 feet over it.

Anchorage.—The anchorage off the SW. side of Green's Pond island is indifferent, the bottom being chiefly of rock with some patches of sand, necessitating great care in selecting suitable ground for anchorage; vessels should ride with a long scope of cable.

Midsummer rock.—This dangerous rock, having only 2 feet on it and 11 fathoms close-to, lies SW. a little more than half a mile from the west point of Copper island, with Horse island half open of Copper island NE. by E. $\frac{1}{4}$ E., and Ford island on the main, shut in by Maiden island, which lies to the southwest of Green's Pond island, bearing NW. $\frac{1}{2}$ N. The rock is so small, that avoiding the line of the above marks will suffice to keep clear of it.

Herring and Midsummer rocks are the only dangers between Copper island and Shoe point, so that when clear to the westward of Midsummer rock, a stranger may safely, in fine weather, proceed to an anchorage south of Green's Pond island in 7 to 10 fathoms.

Puffin and Newell islands lie northward of Copper island; the former is flat, and 55 feet high; at 200 yards NE. from it is Puffin rock,

with 12 feet over it; and NE. $\frac{1}{2}$ E. 800 yards from the island is Puffin ledge, with 5 fathoms over it. Newell island is only 38 feet high, and is divided from Puffin island by a narrow rocky channel.

Light.—From a granite light-house on Puffin island is exhibited, at an elevation of 85 feet above high water, a *fixed red* light, obscured towards the land, between the bearings of ENE. and SSE, or between Big Pools island and Fox island and Fox bay; it should be visible in clear weather from a distance of 12 miles.

Cook Room rock, with 12 feet over it, lies E. 400 yards from the southeast point of Greens Pond island; between Puffin ledge and Cook Room rock is the entrance to the fishing town and station of Greens pond; the church, merchants' establishments, with sealing brigs and schooners moored in the narrow gully between the rocks, give it an imposing appearance; on no account should the anchorage be approached by a stranger.

Greens pond has been a place of considerable importance in the fishery of Newfoundland, and is perhaps the most strangely situated of any village on its coast, being built on several barren granite islands without a harbor, and often during summer without water; the attractions possessed by these exposed positions are the greater facility for getting sealing vessels out in the spring, as the first gales will generally break up the ice; and in summer the proximity to shoal fishing grounds, which formerly yielded an abundant catch of fish, so that a few years ago thousands of quintals were caught where not one is taken now; the failure of the fishery on the coast, together with the increase of population, will probably drive the inhabitants from these bleak and barren spots into the bays, where cultivation of the soil may be prosecuted in aid of the fishery, and an abundance of wood and water obtained.

Pools harbor.—The entrance to this harbor is to the northward of Greens pond, between the islands which stretch north from that island, namely, Partridge, Grassy, and Odd on the south, and Pools islands on the north; it may be recognized by the two Pound islets, which lie three-quarters of a mile northeast of Greens Pond island and the same distance from the entrance of the harbor.

South Pound islet is about 300 yards long and 47 feet high, with shoal water extending 100 yards off it on all sides.

North Pound islet is small, being about 100 yards in diameter and 30 feet high; a reef, which is generally breaking, extends 400 yards from it, in the direction of South Pound islet; and NE. by E. 800 yards from it is a patch of 5 fathoms.

Half rock, with 9 feet over it, lies NE. $1\frac{1}{2}$ miles from North Pound islet, with the south extremes of Pound islets and a saddle over Shoe point all in line, bearing SW., and Swains islands church in line with the summit of the island next west of it, bearing NW. by N.

Big Pools island is, NW. by W., nearly a mile from South Pound islets; it is 114 feet above the sea, and rather higher than the adjacent land, by which, with its rounded summit and two flag-staffs, it may be recognized. On inner Pools island is a church, which, being painted white, is a conspicuous object, and its spire may be seen at a distance when bearing west of NW. $\frac{1}{2}$ W.; when north of that bearing it is hid behind Big Pools island hill.

A rock with 12 feet over it lies a third of the distance from Grassy island to the outer point of Big Pools island; there is also a rock awash at low water lying 100 yards northwestward of Odd island; besides these, there are no dangers in the harbor except those close to the shore or above water.

Midway rock, with less than 6 feet on it, lies directly in the fairway for Pools harbor, between South Pound islet and the shoals off Greens Pond island, with Kaness house on Pools island in line with the west point of Big Pools island, NW. $\frac{1}{2}$ N.; and the south point of North Pound islet, touching the north point of South Pound islet, bearing NE. by E.

Direction for Greens pond.—There are no natural leading marks for the channels between Pound islets, nor for those north or south of them, except those above enumerated. The best channels are immediately north or south of South Pound islet, where in a moderate sea the dangers would generally show; after passing this islet, steer for Big Pools island, taking care not to open the church west of it until the inner part of Grassy island bears southward of SW. by W., or the largest islet west of it opens north of it; and having passed Odd island, anchor in 10 to 7 fathoms, mud, with the west side of Grassy island just touching the east side of Odd island, and the church bearing NE. by E.

A slight swell sets in here with easterly gales, but it is not dangerous to shipping. Smooth water may be obtained in 5 fathoms half a mile farther up the harbor, and small vessels may moor in the channel north of Pools island or in Pudding Bag cove. The favorite mooring for sealing vessels, when lying up, is between Pools and Big Pools islands.

Tides.—It is high water, full and change, in Pools harbor at 7h. 0m. Springs rise 4 feet and neaps 3 feet.

Loo cove is a good anchorage on the mainland about one mile west of Greens Pond island; in running for it, when west of Greens pond there are no dangers until the summit of Copper island is in line with the west extreme of Greens Pond island, and this line should not be crossed until Pools church is well open of Partridge island, so as to avoid the ledge which stretches out nearly a third of the width of the channel from Greens Pond island. After passing the narrowest part of the channel, 400 yards wide, there is good anchorage in 11 fathoms for a space of half a mile, with Pools church in line with the west side of Part-

ridge island, until the north side of South Pound islet is in line with the south point of Partridge island; this mark leads into Loo cove, between two sunken rocks 200 yards apart, where is good anchorage in 7 to 5 fathoms.

North rocks are two in number, with 2 and 3 fathoms over them, covering a space 400 yards in diameter; their outer edge lies about 1 mile ENE. from the southeast point of Greens Pond island. Shoe point in line with the south side of Newell island, SW. $\frac{1}{4}$ W., leads about 200 yards southward of the rocks, and Shoe point in line with the north side of the same island, SW. $\frac{1}{2}$ S., leads north of them. The summit of Big Pools island, lying to the northward of Greens Pond island, in line with the east side of South Pound islet, NW. by W., clears their east side; while the southwest point of Partridge island, open of the east side of Greens Pond island, NW. by W. $\frac{3}{4}$ W., leads southward of them.

Liver ledge has 7 fathoms water, and from it Copper island summit bears SW. $\frac{1}{4}$ W. $2\frac{1}{2}$ miles, and South Pound islet WNW. 2 miles.

General directions.—Approaching Greens Pond from the southward, after passing the dangers off cape Bonavista, a NW. by N. course for 21 miles if inside, and NW. 18 miles if outside them, will lead about 4 miles clear of the dangers off Gooseberry islands; after passing these endeavor to sight land in the vicinity of Shoe point, for, though not the most prominent point of the coast, there is a chance, should it be foggy, of the fog lifting as it is approached; the only danger near it is Midsummer rock, and it is scarcely probable that could be approached without Copper island or the islets off it being first seen.

In clear weather it may be convenient to steer direct for Flowers islands; in this case Pincher island church will generally be the first object identified, from its prominent position.

Having recognized the land about Greens Pond, a stranger can have no difficulty in proceeding to the north, either inside or outside Three rocks and Jacobs ground, by attending to the directions before given to clear them; that is, if going inside, keep north of the line of Shoe point and south point of Newell island; if outside, south of the line, Shoe point touching the north side of Copper island, until Pouch island is open of Flowers islands; should Pincher island church be first identified, it may be safely steered for on a NW. by N. course, until Flowers and the other islands are recognized, after which, in proceeding to the northward, the channel on either side of Stevensons islets may be taken.

The passage east of Three rocks, between Stevensons and Bleak islets, a mile wide, is the most easy, involving less change of course, the only caution necessary being to avoid the shoal ground which extends nearly 400 yards off the west point of the Bleak islets; from this channel steer N. by E. 3 miles, keeping a good look out to the northeastward for Middle

rock, which generally breaks, and on the west for Cobblers fishing rock; the west summit of Butterfly islands kept in line with the northern point of Flowers islands will lead between these dangers, but do not pass north of this line, until the Middle bill of cape Freels is open of Lapstone rocks, which lie about one mile southward of Gull island, when a course may be steered for Gull island, leaving Charge and Norris rocks to the east, and passing east of Gull island at 200 yards or any greater distance.

From Greens Pond island a chain of islands, islets, and rocks stretch NE. by E. for 10 miles, terminating in the Stinking islands; immediately west of these is a good channel to the northward for a vessel leaving Pools harbor.

After leaving Pools harbor, steer NE. $\frac{1}{4}$ E. within Pound islets, taking care not to bring South Pound islet open west of North Pound islet, so as to avoid Half rock and the Twins, until Black reef is in line with the south point of Flowers islands, when the before-mentioned line should be crossed, and Pound islets brought in line, to clear Catamaran rock, an outlying rock eastward of Swains islands; after passing Flowers islands, bring Black reef just open of the islets off Flowers islands, and proceed between Stevenson and Margery rocks; after passing these, steer more to the northward, about NNE. $\frac{1}{2}$ E., keeping a good look out for Middle rock to the eastward and Cobblers fishing rock to the westward, bringing Butterfly west islet in line with the north point of Flowers islands, which leads between them, but not passing north of that line until Middle bill is open north of Lapstone rocks, when a course may be steered for Gull island as before.

These two "runs," inside and outside Flowers islands, are the only channels that can be used by navigators with scanty knowledge of the coast; nearer the shore there are others available for those who have great local experience, and through them they do not hesitate to take sealing vessels of 200 to 300 tons, which are so strongly built for contact with ice that a bump on a rock in moderate weather neither hurts the vessel nor disturbs the pilot.

Approaching Bonavista bay from seaward, the outer points, cape Freels and cape Bonavista, are so low that they may not be readily seen in clear weather beyond 15 miles.

Light.—From a square light-house, painted red and white in vertical stripes, on the extreme of cape Bonavista, is exhibited a *revolving* light showing *red* and *white* alternately, visible for a quarter of a minute and half a minute dark, the flashes occurring at equal intervals of *forty-five seconds*, from an elevation of 150 feet above high water, visible in clear weather 16 miles. Owing to the short duration of this light, and the fact of each alternate flash being red, thereby reducing the intensity, Bonavista light is found to be difficult of recognition; this, and the fact that dangers extend 8 miles off the coast, render it unsafe to approach

the land about this bay except in clear weather and when the position is tolerably well known.

Bonavista bay.—Cape Freels and cape Bonavista, the outer points of this bay, bear from each other NNW. $\frac{1}{4}$ W. and SSE. $\frac{1}{4}$ E., distant $36\frac{1}{2}$ miles. Off cape Bonavista dangers extend N. by E. 6 miles, and off the coast from cape Freels to Shoe point dangers extend fully 8 miles. From Stinking banks off cape Freels to Young Harry off cape Bonavista the course is SSE. 26 miles. The bay is divided into two main branches by a group of islands running in a northeasterly direction, and terminating to seaward in Gooseberry islands. The northern portion is again divided into two main arms, separated by groups of islands and a portion of the mainland; they both run in about SW. 28 miles, the northern arm terminating in Freshwater bay, the southern in Bloody bay. The southern main portion of Bonavista bay, between Gooseberry islands and cape Bonavista, has one principal arm, Clode sound, which runs in a southwesterly direction 45 miles. Besides this sound there are numerous smaller sounds, bays, and intricate channels, amongst the archipelago within Gooseberry islands.

The entrance of the northern portion of Bonavista bay is 6 miles wide, between Shoe point and Gooseberry islands; it then divides into Locker and Cattel reaches. Approaching from seaward be careful to give the dangers off Gooseberry islands a berth of 3 miles; it is advisable for a stranger to make for the north shore of Bonavista bay, about Greens pond and Shoe point, which is comparatively free from dangers. At night the harbor light on Puffin island will be a valuable guide.

Locker reach commences between Fair islands and Brandies rocks; it is $1\frac{3}{4}$ miles wide, its directions SW. $\frac{1}{2}$ W. for a distance of 11 miles on the north side of Deer and Locker Flat islands, when it receives the name of Content reach, continuing the same direction for 5 miles to the entrance of Freshwater bay. The Brandies and rocks off Deer islands are the only dangers in these reaches.

Pitt sound lies between the Deer, Locker Flat, and Pitt Sound islands, and connects Cattel reach with Content reach.

Shoe point is immediately south of Greens pond; it is flat and of small elevation, but the hills behind rise steeply 214 feet; the coast trends W. by S. $1\frac{1}{2}$ miles to New harbor.

New harbor may be recognized by a remarkable cliffy hill 200 feet high on its west side, and by two low islets east of its entrance; the entrance is 100 yards wide, the harbor running in N. by W. 1,200 yards increases in width to 200 yards; there are a few small rocks close off its west shore, but with the exception of these it is free from dangers, with good anchorage in 4 to 5 fathoms, mud. Connected with the harbor by a channel a few yards wide, accessible to boats at high water, is a salt water arm running up $1\frac{3}{4}$ miles, with a breadth of about 200 yards, and

depth of 2 to 3 fathoms; there is a northern branch of this arm which runs in half a mile, in continuation of the direction of the harbor.

Indian bay is formed by the continuation of the shore from New harbor on the north, and on the south by Silver Fox and Brown Fox islands, and the coast in continuation of them; it runs W. for 10 miles, where it branches NW. for a mile and SW. for a mile.

Cat island, on the north shore of Indian bay, is 3 miles from New harbor; it is a mile long in the direction of the coast, and rises to a cone 214 feet high at its east end; immediately east of it is a small islet 6 feet high, with a rock close east of it, and rocks between it and Cat island.

Camel island is small and lies close west of Cat island.

Cat cove, northeast of Cat island, is a favorite shelter with wind-bound sealing vessels; the anchorage is in 7 to 13 fathoms, and the only dangers in approaching it are the islet and rock last mentioned off Cat island; these must be left on the port hand in entering, as there is no safe channel between them and Cat island.

Silver Fox island is $1\frac{1}{2}$ miles long east and west by half a mile wide; its coast is clifty and surface broken; it is divided into two portions by a deep valley, the eastern is the higher, being 271 feet above the sea.

Rocks with shoal water, extend 100 yards off the northwest point of Silver Fox island into Indian bay; and off its southeast side are several islets with rocks amongst them, but steep to on their sea face.

Brown Fox island is a mile long E. and W. by a third of a mile wide; it is bold and rocky, and separated by a clear channel a quarter of a mile wide from Silver Fox island.

A patch of 4 fathoms lies a quarter of a mile north of Brown Fox island, and a patch of 5 fathoms 300 yards off the center of the north shore of the same island.

Cutmans island is 77 feet high, half a mile long by about a quarter of a mile wide; it is separated by a rocky channel of half a mile from Brown Fox island, and by a channel of one-third of a mile from the mainland west of it, and on the north by the main channel of Indian bay, a quarter of a mile wide, from Camel island.

Ship island is the largest of a group which extends two-thirds across Indian bay from its north shore; it is a mile west of Camel island.

Northwest cove is east of Ship island, and in it is good anchorage in 4 to 13 fathoms, mud.

The channel between the Ship island group and the south shore of Indian bay is 600 yards wide, with a depth of $4\frac{1}{2}$ fathoms in mid-chan-

nel, 6 fathoms near the shore, and 7 fathoms near the south island of the group. From this channel Indian bay continues up $3\frac{1}{4}$ miles to Gull island, with a breadth of half a mile; depth 23 fathoms decreasing to 16 fathoms.

Southwest arm is immediately west of Gull island. It runs in west, with depth shoaling gradually from 13 fathoms, mud, to the shore at the head, where a small stream empties.

Northwest arm, NW. of Gull island, runs up northwest for a mile, with the depth of 15 fathoms, mud, shoaling gradually to the shore at the head, where a considerable stream empties.

Fair islands are 2 miles S. by W. of Silver Fox island. They are a barren group, consisting of many dome-shaped isolated granite hills varying in height from the low eastern islets to 300 feet. Immediately within the eastern island is fair anchorage for small vessels; the southern entrance is the best. It is 100 yards wide, with a rock awash at low-water spring tides off the eastern point, therefore it is requisite to keep on the west shore in going in. The anchorage is in 6 fathoms, off the houses on the eastern island.

Lewis island is 2 miles SW. of Fair islands and on the north side of Locker reach; near the center of its south coast, a remarkable hill rises steeply from the sea 456 feet, having on its summit several conspicuous boulders. Frying-pan island is immediately under this hill, 200 yards distant from the shore. It is dome-shaped, 149 feet high, with a clear channel between it and Lewis island.

Trinity bay is formed by Lewis island and the mainland west of it. In the eastern entrance, midway between the Fair and Lewis islands, are Southwest and Saint islands.

Southwest island is small, 52 feet high, steep-to on the south side, but rocks and shoal water extend 400 yards off both the east and west ends.

Saint island is three-quarters of a mile W. by S. of Southwest island. It is 119 feet high, half a mile long W. and E. by 300 yards wide. Immediately off the east point is a rock, and its west end is foul to the distance of 300 yards.

A rock, with less than 6 feet over it, lies N. by E. of Saint island, at 250 yards S. by E. of the west islets off Pork island. To avoid it, keep the south point of Fair islands open of the south point of Pork island.

Pork island is the most westerly of the Fair islands, and forms the north side of the entrance to Trinity bay.

From Saint island, Trinity bay runs in W. $2\frac{1}{2}$ miles, with a breadth of half a mile and depth 20 to 30 fathoms, mud, to the end of Lewis island,

off which is Drake island, formed of two hills 148 feet high, connected by a low rocky isthmus; north of this island the bay continues with a breadth of half a mile, for a distance of one mile, to Gull island, which is conical, and 126 feet high, the water shoaling gradually from 17 to 5 fathoms, at a quarter of a mile from Gull island, and suddenly from 5 to 2 fathoms; south of it is a narrow channel, having close to the south shore a depth of 9 feet; north of the island is a rocky channel, both entering into a basin which runs in W. $1\frac{1}{2}$ miles, receiving the waters of two considerable streams, one in its north corner, the other in the west; the depth of water in this basin is irregular, varying from 7 to 2 fathoms.

Drake cove is southwest of Drake island; it affords fair anchorage in 7 to 10 fathoms; its north shore is ragged, and rocks extend from the east point in the line of its direction, to nearly mid-channel between it and Drake island; the south shore is steep bare rock, the face of a rounded granite hill, the summit of which is strewn with bowlders.

Trinity gut, the western entrance of Trinity bay, is half a mile long by 400 yards wide; there are some rocks off its west shore, with 12 to 7 fathoms in mid-channel, free from dangers.

From Trinity gut the coast is steep and straight, trending southwest $2\frac{1}{4}$ miles to Chalky cove. Chalky hills are over this coast; the outer one, 489 feet high, falls steeply to the sea, and immediately west of it is Chalky cove, which affords a convenient temporary anchorage for small vessels wind bound; the depth is 10 to 4 fathoms, rocky bottom; a rock, with one foot over it, lies 450 yards off its west point.

Locker bay is west of Chalky cove; the entrance is three-quarters of a mile wide between that cove and Pincher island; the bay runs in W. by S. $2\frac{1}{2}$ miles to Birchy head on the south shore; this, the outer part of the bay, has an average breadth of $\frac{1}{2}$ mile, with a depth of 30 to 20 fathoms; above Birchy head is convenient anchorage in 12 to 6 fathoms, mud. South of Birchy head is an arm 1600 yards long by 300 yards wide, having a depth of 7 fathoms, mud.

Locker rock, awash at low water, is in the middle of the entrance of Locker bay; from it Frying-pan island is half open of Chalky head, and the southern hill of Pitt Sound island is seen between Pincher island and the low rock north of it. To clear the rock, keep Frying-pan island entirely open or entirely shut in, until the south summit of Pitt Sound island is over the point within Pincher island, if entering Locker bay, and if leaving, until the same peak is well clear of the rocks off Pincher island.

From Pincher island the coast trends WSW. 2 miles to Shoal bay; it is low and free from dangers. At $\frac{5}{8}$ of a mile from Pincher island is a channel into Locker bay, navigable for boats at high water.

Shoal bay is 2 miles long in the direction of the coast, and nearly a mile broad. The water is deep and bottom rocky, except in the inner part of the bay, where there are 4 to 6 fathoms, mud; it is quite open from S. by W. by south to E.

Hare bay is west of Shoal bay on the north side of Content reach; it is $1\frac{1}{4}$ miles wide at its entrance, and $1\frac{1}{4}$ miles deep. In the entrance is Hare island, 198 feet high. The channels on either side of it are free from dangers, but the shores of the bay are low and rocky, and should not be approached nearer than 400 yards. There is good anchorage in 4 to 18 fathoms, mud, with Hare island bearing E., the deepest water is near the island. There is an islet near the center of the bay, 300 yards from the shore, with $1\frac{3}{4}$ fathoms within it. The anchorage is southwest of this islet.

Fresh water bay is $1\frac{1}{4}$ miles from Hare bay; the intervening coast is free from dangers at the distance of 200 yards. The entrance of the bay is half a mile wide, with Hen islands near the center, dividing it into two channels. The north is shoal, and should only be used by small vessels. The south channel is free of dangers. Having passed Hen islands, they should be kept north of E. $\frac{1}{2}$ S. until Doctors island is open of Benmans island, to avoid the bank which stretches off the north shore.

A small shoal, over which there is a depth of 4 fathoms, lies 200 yards S. by E. of East Hen island, at the entrance to this bay.

Benmans island is $1\frac{1}{2}$ miles from Hen islands; it lies 300 yards from the south shore. Between it and the entrance the coast is rocky and shoal, and should not be approached nearer than a quarter of a mile, or to have the center of Traverse island in line with the outer extreme of Benmans island.

Mussel bank covers 3 feet at high water, and lies N. by E. 150 yards from Benmans island. Small vessels may pass between it and the island.

Butchers cove is immediately within the entrance of Freshwater bay, on the north shore. It runs back to the northeast a mile, by 600 yards wide, with a depth in the center of 13 to 4 fathoms, mud. To enter it, the bank off the south point must be avoided, by keeping Hen islands north of E. $\frac{1}{2}$ S. until Doctors island is open of Benmans island, when steer for the cove.

Doctors island is $1\frac{3}{4}$ miles SW. by W. of Benmans island, and 800 yards from the south shore. It is small, 25 feet high; the intermediate coast is rocky, and should not be approached within the line of the island.

Traverse island is on the northern shore of Freshwater bay; it is small, 15 feet high, and situated at the outer edge of a rocky bank which

stretches $1\frac{1}{2}$ miles from the north shore; shoal water extends half a mile E. of the island, but only 200 yards into the channel of the bay; when within half a mile E. by S. of the island, keep it shut in with Dale point (the land west of the island), pass the island at not less distance than a quarter of a mile, and then shut the north side of the entrance with Benmans island, which will clear the shoal up to Dale point.

Air island is near the center of Freshwater bay, with the main channel south of it; it is two miles above Doctors island; it is 75 feet high, three-quarters of a mile east and west by a quarter of a mile wide; the south shore is free from dangers, but off its north and east coasts, rocky islets, with shoal water, extend 600 yards.

From Doctors island the south shore runs up west 5 miles to the head of the bay; the channel between it and Air island is free from dangers; the depth of water shoals gradually from 13 fathoms, mud, to the head, where there are 3 fathoms at half a mile from the shore. In working up, Traverse island must be kept open south of Air island when standing north, Doctors island open at Green point when standing south.

North of Air island there are 3 fathoms, but the shores are rocky, and a stranger should not attempt that passage. Gambo brook, at the head of Freshwater bay, has 6 feet over the bar at low water, with 2 fathoms within.

On the right bank of Gambo brook, there is a steam saw-mill, and on the left bank of a stream which falls into Gambo brook at three miles above this mill, there is a water mill, the two being connected by a tramway.

Tides.—It is high water full and change in Freshwater bay at 7h. 30m. Springs rise 4 feet and neaps 3 feet.

Cat bay is at the head of Content reach; the entrance is 2 miles long, running in SW., with a breadth of 300 yards, narrowing to 100 yards at the inner end, where is the shoalest water, $3\frac{1}{2}$ fathoms; the bay then opens out, turning sharp to the eastward, round Ballast cliff and widening to half a mile, continues in a NE. direction for $2\frac{1}{2}$ miles. It has a depth of 12 fathoms, mud.

A rock with 3 feet lies in the center, ESE. $\frac{1}{2}$ E., 800 yards from Ballast cliff point, and SE. by S., $\frac{1}{4}$ of a mile from a small islet.

Tides.—In the narrows at the entrance to Cat harbor the ebb stream runs $1\frac{1}{2}$ knots an hour, and the flood nearly a knot.

In the entrance to Freshwater bay the ebb runs nearly a knot an hour, but the flood stream is weak.

Offer Gooseberry island is small, 118 feet high, and appears as a treble peaked island; it is the outer and most conspicuous of a group of rocks and islands which run out NE. by N., on the south of Bloody bay and reach; it lies S. $\frac{1}{2}$ E., $6\frac{1}{2}$ miles from Copper island.

North Brown islets are small, 15 feet high; they lie E. three-quarters of a mile from Offer Gooseberry island.

South Brown islets are small, 4 feet high; they lie SE. by E. $\frac{3}{4}$ E. a mile from the Offer Gooseberry island.

Offer rock is awash, and consequently can generally be seen; it lies $1\frac{1}{10}$ miles from Offer Gooseberry island, with the south point of North Brown islets in line with the south point of Offer Gooseberry island, WSW. $\frac{3}{4}$ W.

Shark rock breaks in a moderate sea; it lies $2\frac{1}{2}$ miles from Offer Gooseberry island, with the north point of North Brown islets in line with the south point of Offer Gooseberry island, WSW. $\frac{1}{4}$ W.

Middle rocks are two, one awash, the other, N. by E. 400 yards from it, has 9 feet over it; they lie SE. by S. $1\frac{1}{2}$ miles from Offer Gooseberry island.

Anstead rock has 6 fathoms; it lies N. $1\frac{1}{10}$ miles from Offer Gooseberry island; there is an 8-fathom patch 800 yards SW. by W. of Anstead rock.

Those above enumerated are the outer dangers off Offer Gooseberry island, and can only be safely avoided by giving that island a berth of full 3 miles.

Inner Gooseberry islands are flat, 120 feet high; they are SW. 4 miles from Offer Gooseberry island; the intervening space is so incumbered with rocks and shoals that it cannot be safely navigated, except by the fishermen who fish about the locality and have great local knowledge. They have a flourishing village on Inner Gooseberry islands, but there is no good harbor for a stranger.

Malone islet and ledge cover a space SSE. and NNW. three-quarters of a mile long; the islet, 2 feet above water, is at the north end; it lies ENE. $4\frac{1}{2}$ miles from Gulch island summit, and S. by E. $\frac{1}{2}$ E. $4\frac{1}{2}$ miles from Offer Gooseberry island.

Mole cove is southwest of Inner Gooseberry islands, on the northeast end of Cottel island; it affords fair anchorage, and is easy of approach from the north by keeping Hare Cut point, the north point of the cove, well open of a remarkable conical rock on the north point of the largest Inner Gooseberry island, to avoid the danger between the Inner and Offer Gooseberry islands; and having given Inner Gooseberry islands a fair berth, keep Offer Gooseberry island open of them, until Hunch island is seen between the east end of Cottel island and the treble peaked island close off it, when steer in, giving Hare Cut point and the island off it a fair berth, and anchor as convenient in 5 to 9 fathoms, remembering that the bottom is rocky.

Deer islands are midway between the Gooseberry and Lewis islands, and divide Pitt sound on their south from Locker reach on the north. They are flat, about 100 feet high, mostly covered with stunted brushwood, and occupy a space 5 miles W. and E. by an extreme breadth of 2 miles; the south and west shores are bold and free from dangers, but east of them are numerous dangers.

The Brandies are the outer dangers off Deer islands; they cover a space of a quarter of a mile east and west, and are in three heads with 5, 6, and 12 feet over them, the shoalest being the most eastern; they all break in a moderate sea. From them Burnt island, the nearest point of the Deer islands, bears SW. by W. $2\frac{1}{4}$ miles, and the east point of Fair islands, in line with the east point of Brown Fox island NNW. $\frac{1}{2}$ W. 2 miles. The south point of Locker bay, open of Deer end (the west point of the Deer islands), leads north, and the summit of Brown Fox island, well open of the east Fair islands, leads east of them.

Burnt island rock, which is generally breaking, lies NE. by E. $\frac{1}{2}$ E. three-quarters of a mile from Burnt island.

Angel head is the eastern point of Deer islands; on the coast north of it a quarter of a mile, is the Popple stone, a conspicuous white boulder.

Brag rock is generally breaking; it is NE. $\frac{1}{2}$ N. three-quarters of a mile from the Popple stone. A patch of 12 feet lies NE. by N. a quarter of a mile from the breaking rock.

Clearing Marks.—Shag islands open south of Angel head SW. $\frac{1}{2}$ S. leads south; Brown Fox summit, well open of the east Fair island NW. leads east of them.

A small group of low islets lies southeastward, distant a quarter of a mile from Angel head; they are steep-to on the outside.

Shag islands are SW. a mile from Angel head; they are small, 35 feet high, half a mile from the shore of Deer islands, and are steep-to on the outside.

Pitt Sound island is $1\frac{1}{2}$ miles south of Deer islands; it is 4 miles long by a mile wide; its wooded hills rise 474 feet steep from the coast, which is free from dangers.

A patch of 6 fathoms lies NE. by E. $\frac{1}{2}$ E. one mile from the east point of Pitt sound island; and another of 16 fathoms, NE. by E. $1\frac{1}{2}$ miles from the same point.

Man-of-war island is small, 5 feet high, 300 yards off the north coast of Pitt sound island, and $1\frac{1}{8}$ miles from east point. Half a mile west of it, on the shore of Pitt sound island, are the Pitt sound gates, so named from the weathering out of white quartz on the black rock of the island having the appearance of enormous gates.

Locker Flat island lies opposite the entrance to Locker bay on the south side of Locker reach; it is 3 miles NE. by E. and SW. by W. by half a mile wide and 40 feet high. It has several low islets off either extremity; there are no dangers off it, but the shores are of shelving rock, and should not be approached nearer than a quarter of a mile.

Isis cove, Great Content, and Little Content are at the head of Pitt sound, on the mainland southwest of Locker Flat island; they are open to the northeast and afford no shelter.

Content islet is off Great Content; it is small, 22 feet high, steep to on the east, but connected by a reef with the east point of Isis cove.

Lakeman islands are WSW. of Pitt sound island, separated by Lakeman reach, which joins Bloody reach on their south to Pitt sound north of them.

Dog cove is on the mainland west of Lakeman islands; there is good anchorage in it for a small vessel. To enter it, the north shore must be approached closely to avoid a reef which stretches more than half way across from the islands on the south side. A stranger should approach the cove by the north of Lakeman islands.

Lakeman Burnt island is the most northern of the group. South of it, between it and the rest, is a clear channel 400 yards wide.

A rock, with 6 feet over it, lies nearly midway across from Lakeman islands to Pitt sound island. The west end of Deer island, shut in with Pitt sound island, until Content islet is open of Lakeman Burnt island, leads clear of it.

Cottel reach commences from the sea between the Gooseberry and Deer islands; it continues between Pitt sound and Lakeman islands on the north and Cottel island on the south, when it receives the name of Bloody reach or the Cowpath, and ends in Bloody bay, the direction of the whole being SW. $\frac{1}{2}$ S. 26 miles from Offer Gooseberry island to the head of Middle arm of Bloody bay.

Bloody reach or the Cowpath, at its entrance between Lakeman and Cottel islands, is 700 yards wide, but narrowed to 400 yards by shoal water which stretches off from Cottel island. The reach is free from dangers for $1\frac{1}{2}$ miles, at which distance on the north are White islets, off which shoal water extends to the east 400 yards; to pass clear, when approaching the islet, keep Beaches head open of it. There is a 3-fathoms patch off the tickle west of Cottel island; to pass clear of it, keep Wolf island open north of Mouse island SW.

Martin Shepherd islands are two in number on the south side of the Cowpath southwest of Cottel island; shoal water extends 300 yards off the eastern island into the Cowpath; between the eastern island and Cottel island is a clear channel, but it must be remembered that the 3

fathoms patch before mentioned lies directly off this channel, so that on approaching it, the south point of Wolf island must be kept open south of Mouse island.

Between the two Martin Shepherd islands is a channel with 5 fathoms on the east and 12 fathoms on the west side; in passing through, remember that the west island is connected with Indian-lookout island by a bar of 9 feet.

There are 4 fathoms 200 yards off the center of the western Martin Shepherd island in the Cowpath.

Broad island is on the south side of the Cowpath, in continuation of the line of Martin Shepherd islands; between it and the western Martin Shepherd island is a clear channel; the channel west, between it and Bloody point, is also clear.

Mouse island is small, 63 feet high; it is in the middle of the Cowpath, $3\frac{1}{2}$ miles southwest of Lakeman islands.

Bloody point, on the south side of the Cowpath, is a steep bluff, rising to 346 feet, southwest of Broad island; the coast from it to Cary cove, opposite Wolf island, is steep and free from dangers.

Beaches head is on the north side of the Cowpath, half a mile southwest of Lakeman island, its highest point is 271 feet above the sea; it is named from the beaches which connect the three steep hills of which it is composed; north of the highest is Beaches harbor, it is small, free from dangers, with anchorage in 3 fathoms within Woody islets on the south side of the entrance, which islets have a clear channel on either side of them.

Rocky bay is west of Beaches head, it runs in W. 4 miles. At $2\frac{1}{2}$ miles within Beaches head its entrance is half a mile wide, with Rocky islands on the south; this entrance is narrowed to 400 yards by Shag islet, a small dry rock with a reef 300 yards east from it on the north, and on the south a reef 400 yards long ENE. and WSW. To pass between these dangers, keep the north side of the hillock forming the south point of Cottel island in line with the south point of Beaches head.

Black Duck island is half a mile within Shag islet; off its west point is a small dry rock; north of the island is Black Duck cove, with a depth of 11 fathoms, mud; it is rocky, and should not be used by a stranger.

Within Black Duck island, Rocky bay is divided into two arms, one continuing to the west, the other extending to the southwest; the point of separation is Ackworth island, which is low, with a reef extending nearly 400 yards E. from it: Northwest arm, on the north of Ackworth island, is 600 yards wide; there is a 2 fathoms' patch nearly in the middle. To proceed to Northwest arm: After passing Shag islet, keep the channel between the Martin Shepherd islands open south of Black Duck island until past the point west of that island, then bring the south part of

Black Duck island in line with the point west of it to lead between the reef off Ackworth island and the 2 fathom patch, and anchor in 12 to 9 fathoms off the north end of Ackworth island.

West arm of Rocky bay.—Bard islands are on its south side, they are low and rocky; a reef stretches off 400 yards N. by E. from the east end of the eastern island; Beaches head in line with Shag islet leads outside it; when the island bears SE. by S. a vessel is west of it, and may steer down past Bard islands and anchor in 13 to 9 fathoms west of them.

From Rocky islands to Wolf island, $4\frac{1}{2}$ miles, the north side of the Cowpath is broken and rocky, but free from dangers beyond the distance of 300 yards.

Wolf island is 153 feet high; it is the southwest point of the north shore of the Cowpath; Northwest arm of Bloody bay runs in from it W. by N. 3 miles, with a breadth of a mile, when it turns to W. for 2 miles and narrows to a quarter of a mile. The outer part is free from hidden dangers, but shoal water extends off the shores to a distance of 200 yards beyond the outer points, and 3 to 5 fathoms off the mouth of Norton cove, which is at the inner end of the west shore. The northwest continuation of the arm has $2\frac{1}{2}$ fathoms in the entrance; within it deepens to 8 fathoms.

Linton rock, in the center of the Northwest arm, is small, 3 feet above high water.

Middle arm.—The entrance is WSW. of Wolf island, between hills steep-to rising 400 and 500 feet; it is 400 yards wide for a mile, when it opens out to a bay 3 miles long by $1\frac{1}{2}$ miles wide; the depth gradually decreases from 20 fathoms to the shore at the head.

There is a **rock** $1\frac{3}{4}$ miles within the entrance at 600 yards from the north shore; it is just covered at high water.

North-east arm is in continuation of the direction of the Cowpath south of Middle arm; it is shoal 300 yards from either shore; there is anchorage in less than 10 fathoms at three-quarters of a mile within the entrance, the depth decreasing rather quickly to the shoal entrance of an extensive arm of the sea, only navigable for boats at high water.

Saint rock, with 12 feet over it, is the outer danger off the entrance to Willis reach. From it the summit of Gulch island bears WNW. $\frac{1}{4}$ W., summit of Black island WSW. $\frac{1}{2}$ W., the nearest part of the island distant $2\frac{1}{10}$ miles.

Saturday ledge has 4 fathoms on its shoalest part, which lies three-quarters of a mile W. by N. of Saint rock; the ledge extends one-third of a mile S. by E. from its shoalest part.

Black island is S. by W. of Gulch island, separated from it by a deep-water channel three-quarters of a mile wide; it is three-quarters

of a mile in diameter, 234 feet high. East and south of it are rocky islets and reefs, extending a quarter of a mile to the east and three-quarters of a mile to the south.

Flat islands are southwest of Black island. Though there is deep water between them, the rocks which extend off their southern extremities make it dangerous for a stranger to approach. The flat islands extend over a space $2\frac{1}{2}$ miles NW. by W. and SE. by E. by half a mile wide east of Willis island. They are from 80 to 140 feet high, and have a general flat appearance; they are the residence of a few fishermen, whose huts are scattered over the center islands of the group.

Bessy island is 284 feet high, and appears as a large, rounded, woody hill. It is the largest of a group of islands lying southeast of Willis island, and separated by a deep-water channel a third of a mile wide from the Flat islands. There are no convenient anchorages amongst these islands, and the channels amongst them should not be attempted without a pilot.

Willis island has a general elevation of 250 feet, without any well-defined hills; it is $3\frac{1}{2}$ miles long east and west, with a breadth of $1\frac{1}{2}$ miles. Bessy, Flat, and Black island groups stretch 3 miles ENE. of it, and in continuation of them are Saturday ledge and Saint rock.

Morris island is $1\frac{1}{2}$ miles in diameter and 279 feet high; it lies S. by W. one mile from Willis island, and is the western and largest of a group which extends E. 3 miles from it, and terminates seaward in Ship island, a cone 257 feet above the sea. From its isolation this is a conspicuous object when entering Bonavista bay.

Cow head is S. $\frac{1}{4}$ W. $2\frac{3}{4}$ miles from Ship island. It is a steep bold cliff, 479 feet high, and with the high land behind it, of which Gerrards hill is the highest, 629 feet above the sea, is conspicuous from the entrance of Bonavista bay, and forms the dividing head between the entrances to its northern and southern arms. The channels on the north converge towards the Cowpath, those on the south diverge into separate bays and sounds.

Shag islands are a group of four, covering a space of a mile NE. and SW., and are 600 yards off the land east of Bishops harbor. The channel between them and the mainland is, on the islands side, clear of danger, but at 100 yards from the mainland is Old Harry, a rock awash.

Bishops harbor is immediately east of Cow head and southwest of Shag islands; it is 400 yards in diameter, with 5 fathoms rocky bottom. The entrance is between rocks which extend across the mouth of the harbor, leaving a passage 50 yards wide, with a depth of 18 feet. In ordinary weather this passage is safe, but with a heavy sea it must not be attempted, and at no time by a stranger. There is an inner

basin called **Salvage**, with a depth of 6 feet in its entrance and 4 fathoms within. There is a thriving fishing population around this harbor.

Little Denier island is half a mile ENE. and WSW. by 300 yards wide, 278 feet above the sea. It lies off the harbors east of Gerrards hill. A line of rocks and shoal water extends off either end.

Offer rock is awash, and, consequently, except in a very smooth sea, will be seen. It lies 1,600 yards NE. $\frac{1}{4}$ E. from Little Denier island. Tilley's hill, open south of Little Denier island, leads south of it. Hammer head, open north of Little Denier island, leads north of it.

Middle rock has 9 feet over it; it lies NE. $\frac{1}{2}$ E. 700 yards from Little Denier island, with a clear channel nearly half a mile wide between it and Offer rock, and one of 400 yards wide between it and Inner rock, which has 5 feet over it and lies NE. $\frac{1}{2}$ E. 200 yards from Little Denier island.

A 5 fathoms patch lies 700 yards SW. by W. of Little Denier island.

Broom close harbor is within and between Shag and Little Denier islands; its entrance is 400 yards wide, but a reef of 12 feet, over which the sea breaks heavily, extends E. 600 yards from the north head, and narrows the channel to 250 yards. The bay runs in $1\frac{1}{2}$ miles without hidden dangers. There is a rocky islet, 5 feet high, about half way up, off the south shore.

Barrow harbor is SW. by W. of Little Denier island. Its south head is formed by Richards island, which is a large, flat mound, steep to the eastward, 289 feet high. From this island a reef extends NE. by N. three-quarters of a mile towards Little Denier Island; Outer Brandy rock is at the outer end; it has 5 feet over it. The east end of Shag islands, shut in with the west end of Little Denier island, leads east of it. No mark can be given to lead between Outer Brandy rock and the shoal water off Little Denier island, therefore this channel into Barrow harbor must not be taken by a stranger. Entering the harbor north of Little Denier island, keep on the northern shore to avoid shoal water off Little Denier island; and when getting near the narrows keep mid-channel and anchor southwest of Tilley's head in 20 fathoms. The depth is so great and the shelter so indifferent that Barrow harbor cannot be recommended.

Tides.—It is high water, full and change, in Barrow harbor at 6h. 13m. Springs rise $4\frac{1}{2}$ feet, and neaps $2\frac{1}{2}$ feet.

Little barrow harbor is on the north side of Barrow harbor, between Broom close head and Tilley's head. It runs in W. by S. half a mile, with width of 200 yards; the upper part is foul on the north side.

Tilley's head is a remarkable cliffy hill, 350 feet high.

Hammer head is a remarkable cliffy cone, 259 feet high, on the south side of Barrow harbor southwestward of Richards island.

Sailors harbor is west of Cow head; it is formed by several islands on the north, which extend west from Cow head, and on the south by Gerrards hill. It is a mile NE. by E. and SW. by W. by a quarter of a mile wide, with anchorage in 7 to 10 fathoms, rocky bottom. The entrance is immediately north of the mainland; between it and Seal rock in the center is a 10-foot patch, with Seal rock in line with the west end of Sailors island. In entering, the left fall of the west Shag island in line with a conspicuous house leads through in $3\frac{1}{2}$ fathoms. This mark also leads clear of a shoal with 6 feet, which lies off the first point on the south side within the entrance.

Bakers Loaf island is clifty, 234 feet high, W. by N. $1\frac{1}{4}$ miles from Sailors island. Between them is the entrance to Salvage bay, which runs southwest 4 miles, with 22 fathoms in the entrance, gradually shoaling to the head, where there is fair summer anchorage in 5 fathoms, sand.

Bakers Loaf rocks extend 900 yards SE. by S. from the island; the outer patch has 9 feet over it. West Shag island open of Cow head leads north of them; the break in the sand cliff at the bottom of Salvage bay open of Baldrick head leads south of them. South of Bakers Loaf island are numerous islands and rocks, extending $1\frac{1}{4}$ miles to Baldrick head on the north side of Salvage bay.

Damnable bay is on the west of Bakers Loaf island; it runs in southwest $2\frac{1}{4}$ miles. The outer part is deep, but among the islets at the head is a moderate depth, but no convenient harbor.

Morris channel is between Bakers Loaf and Morris islands; it runs in $5\frac{1}{2}$ miles to the Cowpath. In the entrance are two islands, Brown Store on the south, 68 feet high, and Athwart island, small, 83 feet high. There are no dangers in the channels between or on either side of these islands.

A rock, with 7 feet over it, lies 400 yards S. from the Coffee Pot, an islet at the south point of Morris island.

A rock, with 9 feet over it, lies S. by W. 800 yards from Coffee Pot islet. Shag islands, open south of Athwart island, leads south of these rocks; the west end of Willis island, well open of Morris island, leads west of them; and shut in, leads east of them. From these rocks the channel is clear for $2\frac{1}{2}$ miles, when it narrows to 1,300 yards between Bruce Cove Gull and Tinker islands.

A rock with 5 feet over it lies ENE., a quarter of a mile from Bruce Cove Gull island; it has deep water around it. The channel north of it is widest, so Tinker island should be approached closely in passing, being careful to shut in the low islet east of Tinker island before the west point of Indian-lookout island shuts in with Broad island, and when the summit of Indian-lookout island is shut in, a vessel will be past the rock. From this to the Cowpath there are no dangers.

Bay of Fair and False is on the south side of Morris channel, and with the arms north of it runs back 4 miles from the line of coast. Squid island, southwest of Morris island, forms the east entrance point; from it the coast trends into the bay SW. by W. 2 miles; it, like the island, is low, broken, and rocky; the depth of water in the bay is 22 to 10 fathoms. The north side is formed by several islands extending as far as Bloody point; channels among them are narrow and free from dangers. Middle reach is the eastern; it runs in southwest a mile with a breadth of 200 yards, and then opens out to a basin half a mile in diameter, with a depth of 13 fathoms, mud; three shoal arms branch off from it south and west. It is separated by a rocky channel from Long reach, which runs out NE. by N. immediately east of Bloody point; Long reach is 200 yards wide, and in mid-channel free from dangers.

Pretty island is NW. by W. three-quarters of a mile from Squid island; it shelters Bloomer harbor, the outer part of which is 600 yards wide, with 13 fathoms, mud. The inner part has an entrance 300 yards wide; within it widens to more than 400 yards, with 8 fathoms, mud.

Varket channel is between Willis and Fair islands on the north, and Morris and the islands extending to Ship island on the south; its direction is W. 5 miles to where it joins Willis reach on the north, and Morris channel on the south.

Ship rock is in the entrance of Varket channel; it has 4 feet over it, and lies NE. $\frac{1}{4}$ N. three-quarters of a mile from Ship island. From the rock, Sailors island is just open of Ship island, and the points of the main channel through the Flat islands touching; by attention to these cross-marks, and noting that Bakers Loaf island open south of Ship island leads clear of all dangers the rock may be avoided, but often the position is well marked by the sea breaking over it.

To enter Varket reach, keep near to Ship island, and shut in the Flat island channel before shutting in Sailors island with Ship island; from Ship island the fairway is clear on either side of Varket island. This island is small, composed of two cones 70 feet high; there is a sunken rock 50 yards off its southwest point.

A rock, which dries one foot at low water springs, lies 400 yards off the north point of Morris island.

A rock, awash at high water, lies WNW. $\frac{1}{4}$ of a mile from Varket island.

Willis reach is north of Willis island; it is 6 miles long from its entrance between Black and Gulch islands, with a general southwesterly trend. There are no dangers in the fairway through the reach; the depth is 100 fathoms in the east end, shoaling to 8 and 10 fathoms at the west, where it branches into numerous channels leading into the

Cowpath, Morris, and Varket channels; these branching channels are shoal, and should not be attempted without a pilot.

Newman sound is between the high land stretching westward of Gerrards hill on the north, and on the south the Long islands and the land stretching W. to mount Stamford; near the center is Swale island, $4\frac{1}{2}$ miles long ENE. and WSW. by three-quarters of a mile wide; southwest of it is Swale tickle; north of it is the main arm of the sound, which runs in WSW. 12 miles from Richards island. Caution is necessary when seeking an anchorage in the southwest part of this sound, as the water shoals rapidly within a depth of 15 fathoms.

Halfway islet is small, 18 feet above the sea, 300 yards from the north shore of Newman sound and 4 miles within Richards island; the coast between them is cliffy and steep-to.

Sandy cove is a mile west of Halfway islet; it is an open bay half a mile wide, with a depth of 10 to 5 fathoms, sand.

Little Happy Adventure is west of Sandy cove; it is very small and only of value to boats.

Happy Adventure is west of Little Happy Adventure and east of Holbrook head; it is too small to be of value as an anchorage to strangers, being too narrow except for large boats.

Holbrook head is 3 miles W. by S. of Halfway islet; being a salient point of the coast it is easily recognized.

North Broad cove is a mile W. of Holbrook head; it runs in W. by N. a mile, with a breadth of a third of a mile; a **rock**, that dries one foot at low-water spring tides, lies about 200 yards from its east head, and another **rock**, with 9 feet over it, lies in the center of the cove; the depth of water is 29 to 13 fathoms, this latter being found when close to the shore at the head. From the great depth it cannot be recommended as an anchorage.

From North Broad cove the coast trends SW. a mile to Shag islet, which is 10 feet high, 300 yards from the north shore of Newman sound, and $5\frac{2}{10}$ miles SW. by W. of Halfway islet. The coast continues broken and rocky for 4 miles to Buckley point, but free from hidden dangers, except Hall rock, which covers at half tide, and lies a mile SW. by W. of Shag islet and 375 yards from the shore.

Swale island is bold and free from dangers along its north shore. Rachel cove is 2 miles west from the east point; it runs in a quarter of a mile with a depth of 9 fathoms.

Cold East rock dries one foot; it lies northwest a quarter of a mile from the west point of Swale island. The east point of Swale island open of its north coast leads outside it.

Several islands extend SW. by W. $1\frac{1}{2}$ miles from Swale island and

form Swale tickle. Between Swale island and the islet next west of it is a short channel 100 yards wide, with $4\frac{1}{2}$ fathoms in it, connecting Newman sound with Swale tickle, which is three quarters of a mile wide and free from hidden dangers. White islets are south half a mile from the west end of Swale island; north of them is a depth of 7 to 10 fathoms, sand and rock. From White islets the tickle trends E. 3 miles to Copper island, the depth quickly increasing to 40 fathoms.

South Broad cove is on the south side of Newman sound, west of Swale tickle; it runs back SSW. a mile with breadth of 400 yards. The depth decreases gradually from 20 to 3 fathoms mud; it is a good anchorage. **A rock**, that covers 2 feet, lies 100 yards off shore, a quarter of a mile within the east head.

Minchin head is a cone 148 feet high, three-quarters of a mile W. of South Broad cove, and at $1\frac{1}{2}$ miles farther in the same direction is mount Stamford, which rises steeply from the sea 658 feet, and with Park harbor and Ochre Pit hills, which lie between it and Clod sound, are conspicuous objects from seaward; north of mount Stamford the channel between it and Buckley point is 400 yards wide; west of it the sound continues SW. with a breadth of three-quarters of a mile for $2\frac{1}{2}$ miles, where it receives the water of a considerable stream; the depth is 29 to 20 fathoms for 2 miles when it quickly shoals. Buckley cove is west of Buckley point; it runs N. by E. nearly half a mile and has convenient anchorage in 4 fathoms.

Long islands are a group of four, extending 5 miles WSW. and ENE., a mile wide at the east end, gradually narrowing to a sharp point at the west end; the east end is $4\frac{1}{2}$ miles S. by E. $\frac{1}{2}$ E. of Richards island and $5\frac{1}{2}$ miles WSW. from Western head.

Puttick rock, with 4 fathoms over it, lies 700 yards north from the northeast point of Long island.

A Ledge, with 9 fathoms over it, lies 800 yards N. by E. of the east point of Long islands.

Chappel tickle is the first channel from the east amongst Long islands; it is rocky and only available for small vessels.

Middle tickle is short and narrow, but free from dangers, except close to the shore on the east side, and a patch of 9 feet, 400 yards to the south on the same side.

Long tickle is the western channel amongst Long islands; it is narrow and rocky.

Hurloc head is a steep bluff 230 feet high, west of Long islands, and separated from them by a short channel half a mile wide, clear of dangers.

Copper island lies NE. by N., half a mile from Hurloc head; it is small, 120 feet high, and steep all round.

From Southern head to Western head is W. $\frac{1}{2}$ N., $3\frac{1}{2}$ miles; the intervening coast is much indented, and has rocky ground extending three-quarters of a mile off it, nor should it be approached nearer than to have the eastern hill of Swale island open of Western head.

Backside cove is immediately west of Southern head; it affords no shelter.

Keels and **Castle coves** are west of Backside cove. They are incumbered by rocks, and afford only a summer resort for fishing vessels. Keels is a considerable fishing village.

Cary rock, with 12 feet over it, is the outer danger off Keels; it lies NNE. three-quarters of a mile from Kells east head, and with the east point of Swale island in line with the extreme of Western head.

Western head is a bold barren promontory, steep to on both sides, and rising to 443 feet above high water. East of it a cove runs back S. by W. a mile, the water is deep, the cove open, and the east shore foul.

There are two patches of 7 and 8 fathoms north nearly a mile from Cary rock; the outer one, with 7 fathoms, is NE. by E. $\frac{3}{4}$ E. $1\frac{2}{10}$ miles from Western head.

Clam rock, with 10 fathoms, lies NE. a mile from Western head.

There is broken ground having patches of 10 fathoms, with 30 to 40 fathoms between, lying $1\frac{1}{4}$ miles from Western head, between the bearings NW. by N. and N.

Snurns ledge, 7 fathoms, lies NW. by W. $\frac{1}{2}$ W. one mile from Western head.

New ground, 11 fathoms, lies WSW. $\frac{1}{3}$ W. $2\frac{1}{2}$ miles from Western head.

Dennys rock, 10 fathoms, lies W. $1\frac{1}{4}$ miles from Western head.

These last enumerated rocks of 7 to 10 fathoms around Western head at the distance of about 2 miles cause a confused sea in heavy weather, which at times breaks over them.

Bacon bone rock has 4 feet over it, within 3 fathoms at a distance of 300 yards NW. by N.; it lies SW. by W. $\frac{1}{2}$ W. $1\frac{1}{4}$ miles from Western head and three-quarters of a mile from the nearest shore; Southern head, open of Western head, leads north; Deer island, shut in with Long islands, leads northwest, and Arrow point, open of Red Cliff island, leads west of it.

From Western head the coasts trends SW. by S. $3\frac{1}{4}$ miles to Arch Cliff point; it is steep and bold, until off Tickle cove, north of Arch

Cliff point, when it becomes low and ragged, with rocks extending off 400 yards. Tickle cove is a fishing village without any harbor. Rocks extend off Arch Cliff point 400 yards; the cone at the bottom of Plate cove. in line with the low saddle on the east side of Plate cove head, leads outside them, and also outside the Tinker ledge north of Red Cliff island.

From Arch Cliff point the coast trends S. by W. $3\frac{3}{4}$ miles to Plate cove; between is Open hole, a shallow bay with a considerable fishing village on the shores, which affords no anchorage.

Red cliff island is a mile S. by W. of Arch Cliff point, 300 yards off shore; it is 50 feet high, and conspicuous from the red and yellow rocks of which it is composed.

Plate cove is half a mile wide, and runs in a mile to the south; it affords good anchorage in 10 to 5 fathoms in the east corner, and fair anchorage in the south corner. There is a convenient watering place in the east corner easily approached by boats; there is a considerable fishing village on its shores.

Cutler head is a cone 397 feet high, $3\frac{1}{2}$ miles W. by N. from Plate cove head; between is the entrance to Southward bay, which runs in SSW. $9\frac{1}{2}$ miles; the shores are steep, and in the main arm free from dangers, but the water is too deep to afford convenient anchorage.

Indian arm on the east side of Southward bay, 3 miles above Plate cove, has a small fishing village around its shores, but no convenient anchorage.

Southward bay head is a steep bluff 328 feet high, on the north side of Southward bay, $2\frac{1}{2}$ miles SW. by W. from Plate cove head; west of it is Kate harbor, with a rock in the entrance and no anchorage.

Cutler harbor is south of Cutler head, its entrance is rocky and narrow, and should not be attempted without a pilot; a stranger should keep Chance islet open of Cutler head to be well clear of all danger.

Seal cove, on the south side of Southward bay, $3\frac{1}{2}$ miles above Indian head, is small and has anchorage in 4 fathoms. The west side of the cove is rocky; there are a few fishermen's houses on its shores. At a mile above Seal cove, Southward bay is a quarter of a mile wide, the depth about 20 fathoms; from this to the head, a distance of 2 miles, the depth gradually decreases.

Chance islet is small, 35 feet high; it lies off the dividing point between Sweet bay and Chandler reach; it is $1\frac{1}{2}$ miles NW. by W. from Cutler head and $1\frac{1}{2}$ miles S. by W. of the Long islands.

Chance harbor ledge has 5 feet over it; it lies with Chance islet in line with the point inside Deer island WSW. three-quarters of a mile, and the east fall of Indian-lookout (a conspicuous hill south of Southward bay) in line with the east extreme of Cutler head SSE.; by not having both these marks on together, the ledge will be avoided.-

Sweet bay commences between Cutler head and Chance islet; it runs in SW. by S. 8 miles. At $3\frac{1}{2}$ miles within Cutler head it divides into two parts, named Northwest and Southwest arms. At the heads of both of them there is anchorage, in 16 to 10 fathoms; between the arms the land is rugged, the highest point is Nut hill, 600 feet high; it is a conspicuous object from the sea between Western head and Long island. In continuation of this dividing land to the NE. are Hunt, Gooseberry, and Hay islands. The latter is small, 46 feet high; they are all steep-to. Rocks extend 200 yards off the south shore of the Southwest arm, immediately opposite Hay islet; a rock, which covers 3 feet, lies immediately opposite Hay island, 300 yards from the north shore of Northwest arm. These rocks are the only dangers in the upper arms of Sweet bay.

Gull island is a mile within Cutler head, 800 yards from the shore; it is small, 46 feet high. Close south of it is Turfpook island, a cone 165 feet high, and at a third of a mile farther S. by W. is Wooded island, 113 feet high; between these islands the ground is broken and rocky.

Great Chance harbor is the first inlet on the north side of Sweet bay; it runs in SW. by W. 3 miles, 300 yards wide, with a depth of 16 to 10 fathoms, mud; the north shore is steep. The southern side of the entrance is formed by Woody and Mustard Gull islands, the latter being the outer or eastern. In continuation of the line of these islands is Brines rock, which has 2 feet over it at high water; from it Chance islet is just open of Chance head. To avoid it, keep Woody island open north of Mustard Gull island, until Chance islet is well open, or well shut in with Chance head; after passing it there are no dangers in Great Chance harbor.

Little Chance harbor is on the north side of Sweet bay, S. of Great Chance harbor; it runs in WSW. a mile, having a breadth of 200 yards; the head then opens out to nearly 400 yards wide with a depth of 10 to 12 fathoms.

Clode sound.—Chandler reach, the entrance to Clode sound, is between Long islands and Chance islet; from this it runs SW. by W. 10 miles with a breadth of a mile to Connecting point, where it divides into Goose bay on the south and Clode sound on the north. Clode sound continues in the same direction with a breadth of three-quarters of a mile for 11 miles to the Narrows; it is entirely free from danger at a moderate distance off shore.

The Narrows are a quarter of a mile wide; they are formed by shoal water and two islets 12 and 8 feet high stretching out from the south shore, leaving a clear passage with 8 fathoms water along the north shore; above the Narrows the sound widens to $1\frac{1}{2}$ miles and continues 4 miles southwest; the depth in the center is too great for anchorage; the south shore is steep-to; the north shore is broken and rocky, with dangers extending fully a quarter of a mile off it, and for another quarter

of a mile the depth is less than 10 fathoms, after which it falls steeply into 30 fathoms; good anchorage will be found near the head in 15 to 3 fathoms, the most convenient being near the north shore, off a point of Northwest arm, which is at the extreme of the north shore and is very shoal.

Lion's den is on the north side of Chandler reach, running in from Hurloc head WSW. 4 miles; it is very rocky and entirely unfit for anchorage.

Minchin island, a quarter of a mile off the north shore at the west end of Chandler reach, is rocky all round, flat topped, 83 feet high, and conspicuous both from Chandler reach and Clode sound. W. three-quarters of a mile from Minchin island is Ashley Baker island; between them the coast is broken and rocky; anchorage in 8 fathoms will be found between these islands as a temporary anchorage in fine weather; the bottom as well as the coast is rocky and broken.

Ochre pit hill lies on the north side of Clode sound, $5\frac{1}{2}$ miles W. by S. of Minchin island; it is isolated and cone shaped at top, 596 feet above the sea; east of it are Bread and Dumpling coves. They are both rocky, and afford anchorage in 4 fathoms between the line of their outer points, on a bottom strewn with bowlders.

Bryans hole point is on the north shore of Clode sound, $3\frac{1}{2}$ miles SW. of Ochre pit hill; there is anchorage on either side of this point.

Love cove is on the south side of Clode sound, $1\frac{1}{2}$ miles E. by S. of the Narrows; there is anchorage in it in 8 fathoms.

Bunyan cove, on the south side of Clode sound, $2\frac{1}{2}$ miles east of the Narrows, has anchorage in $3\frac{1}{2}$ fathoms.

From Bunyan cove to Pudding cove, the south side of Clode sound and Chandler reach is steep to and affords no anchorage.

Deer island, on the south side of Chandler reach west a mile from Chance islet, is nearly a mile long, and 310 feet high; the outside coast of this island is steep cliff, with 50 fathoms close to; between it and the shore is a narrow channel with 6 fathoms water.

Pudding cove on the south side of Chandler reach is south of a small island a mile above Deer island; it is 200 yards in diameter with 4 fathoms, mud, and a good watering place.

Goose bay is 6 miles long, with an average breadth of three-quarters of a mile; its direction is SW. by W.; it is entirely free from dangers, except close to the shore and within the line of the points of its bays, which are all shoal and rocky; the depth in the main part of the bay is great, until within three-quarters of a mile of Goose head (a bluff on the east side of the bay), 5 miles within Connecting point; at this part there are 14 fathoms, and from this to the head, a distance of 2 miles, there is good anchorage.

Shag island is near the middle of the above anchorage; it is small, but foul all round for a distance of 400 yards.

The coast runs from Green island to Black head SW. by S. for a distance of 5 miles, and between are three small bays, viz: Red cove, Bailey cove, and Bonavista, which is the most southern, and the only one affording anchorage, the others being encumbered by rocks and more exposed. A stranger bound for Bonavista should not approach the shore nearer than to have a small portion of Gull island just seen west of Green island, until Squarey islet bears SE. by S., when a vessel may enter, passing close to the latter islet, to avoid a shoal with $3\frac{1}{2}$ fathoms water, about 200 yards off it, and anchor in 6 fathoms water. This bay is only available for vessels during summer. Squarey islet is 43 feet high, and the outer of a ridge of rocks forming the north side of the bay.

Tides.—It is high water, full and change, off Bonavista at 7h. 25m. Springs rise $3\frac{1}{4}$ feet and neaps $2\frac{1}{4}$ feet.

Green island, on the west side of cape Bonavista, is half a mile long, 69 feet high, and separated from the land of the cape by a channel 300 yards wide, carrying in the deepest part 2 fathoms water, east of a rock nearly in mid-channel.

Stone island is small, and consists of several masses of slate 40 feet high; it lies W. of Green island, the channel between being a mile wide, and clear of danger.

Black head bay, southwest of cape Bonavista, is $7\frac{1}{2}$ miles wide between Black and Southern heads and 6 miles deep. From Black head the eastern shore trends SW. by S. $4\frac{1}{2}$ miles to Wolf head, the coast being steep and clear of danger; some small open bays have a few scattered inhabitants, but afford no shelter for vessels. The coast hills are about 200 feet high, and appear separated by valleys from the back range, which is from 400 to 500 feet high.

Wolf head is a remarkable bluff, 225 feet high, and from it the coast is low, clear of danger, and trends SSW. $2\frac{1}{2}$ miles to the head of the bay, which is $1\frac{1}{2}$ miles in extent, with a broken and rocky shore; thence for 2 miles N. by W. to Knights point the coast is shelving, with shoal water 200 yards off. Between Knights point and Kings cove is an open bay, $1\frac{3}{4}$ miles deep and the entrance a mile wide; there are two coves at its head; the bay is clear of danger, but affords no shelter.

Kings cove is small, 700 yards long NE. by E. and SW. by W., shoaling gradually from 20 fathoms at the entrance, which is 300 yards wide, to the beach, 150 yards wide at the head. It is open to the northeast, but said to be a safe anchorage for small vessels; as the water shoals suddenly, they do not drag inshore, but at times drift to sea.

Broad head is a bluff, 317 feet high, with a front three-quarters of a mile NW. by N. and SE. by E., separating Kings cove from Broad cove

and village, which are immediately south of the Southern head, a steep cliff rising to a hill 510 feet high.

Aspect of coast.—From the eastward the most remarkable feature north of the entrance to Trinity bay is Burnt ridge, some table-land 4 miles south of Cape Bonavista 500 feet above the sea; it is nearly 100 feet higher than the land in its immediate vicinity, and 300 feet above the general elevation both north and south of it. As the land is approached, Largent hill, north of it, becomes visible, then Norther head, and lastly Cape Bonavista light-house and Gull island off it. From the north, Green ridge, which is the north part of Burnt ridge, will probably be the first land seen, but if cloudy, Cape Bonavista light-house, which may be seen from a distance of 14 miles.

Harrys ground, N. by E. of cape Bonavista, is more than $2\frac{1}{2}$ miles in length in a SSW. and NNE. direction, and $1\frac{1}{2}$ miles in breadth. It consists of several rocky patches, with from 7 feet to 16 fathoms water over them and 20 to 30 fathoms between them; within half a mile of the north, east, and west sides of the bank there are 50 to 60 fathoms.

Old and Young Harry rocks.—Old Harry, the southern rock of Harrys ground, has 7 feet water on it, and lies N. $\frac{1}{2}$ W. distant $4\frac{1}{10}$ miles from Cape Bonavista light-house and NNE. from Stone island. Young Harry, the northern rock, has 4 fathoms on it, and lies N. $\frac{5}{8}$ E. $6\frac{2}{10}$ miles from the light-house and NNE. from Stone island. Kelp rock, with 15 feet on it, lies S. by W. $\frac{1}{4}$ W. 600 yards from Young Harry. Middle rock has 3 fathoms on it, and lies S. by W. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles from Young Harry and nearly midway between it and Old Harry. There is also a patch with 7 fathoms on it named Eastern rock.

Cape Bonavista light-house, bearing SSW., leads eastward of these dangers; and the same light-house S. by E. leads westward. In foggy weather, should the position of the vessel be well known, close with Gull island, as there are no dangers in the immediate vicinity of Cape Bonavista to affect a ship in moderate weather, the Old Harry being 3 miles from Gull island.

Rocks with less than 5 fathoms water on them break with a moderate sea, those from 5 to 10 fathoms break with a heavy sea, and those with 10 to 15 fathoms break after heavy gales from seaward.

Dacres rock, with 9 fathoms water on it, lies N. $\frac{1}{2}$ W. distant $2\frac{3}{10}$ miles from Cape Bonavista light-house; Skimmerton ground, with 12 fathoms NE. by E. $\frac{1}{4}$ E., $1\frac{9}{10}$ miles from the light-house, and East Brandy shoal, with 7 fathoms on it, E. $1\frac{1}{10}$ miles from the light-house.

Gull island is 200 yards in extent, 117 feet high, and lies 1,200 yards N. by W. of Cape Bonavista, the channel between being clear of danger except near the shores. A rock with 12 feet water on it lies S. by W. 200 yards from the island, and another with less than 6 feet on it 400 yards SW. by W. of the cape, but close to the shore.

CHAPTER VIII.

NEWFOUNDLAND, EAST COAST.—CAPE BONAVISTA TO CAPE RACE.

Cape Largent.—From Cape Bonavista to Spillers point, a distance of $2\frac{1}{4}$ miles, the coast is of cliff, indented with several small bays, which afford no anchorage. Spillers point is a flat-topped cliff, with several remarkably small but high detached rocks off it, the highest being 121 feet above the sea. Cape Largent, a mile farther to the southeast, is a shelving point, with the extremity cut off from the main part of the land by a deep rent, and at a short distance off it is a small rock just above water. A hill inland from this point is 433 feet above the sea, and remarkable, being separated from Burnt ridge by a deep valley and rising more than 200 feet above the flat cliffs of the coast.

Bird Island cove.—A mile south of Cape Largent is Bird Island cove, affording no shelter, but it is a good station, from whence cod-fishing in boats may be carried on.

North Bird island is small, 124 feet high, and lies $1\frac{1}{2}$ miles ESE. $\frac{1}{2}$ E. of Cape Largent. South Bird island is also small, 130 feet high, and is half a mile S. by E. of North Bird island. Flowers point is 4 miles from Cape Largent; the coast between this latter point and North head, 3 miles to the southward, is flat, with steep cliffs, forming a bay three-quarters of a mile deep.

Dollarman bank.—The coast from Cape Bonavista southward is bordered by an irregular rocky bank, considered a good fishing ground, and from a depth of 20 fathoms at the northeast extremity of Dollarman bank E. $\frac{1}{2}$ S., distant $5\frac{1}{6}$ miles from Cape Bonavista light-house, to $6\frac{1}{4}$ miles off North head, are numerous rocks, with 7 to 10 fathoms, and deep water close around them, on which the sea breaks after an easterly gale; consequently in bad weather it is advisable to pass eastward of the Haypooks, the outer danger, by keeping Cape Bonavista light-house westward of NW. by W., or Largent hill open of North Bird island, until Skerries hill, west of Catalina harbor, bears northward of WSW., when a vessel may steer more to the westward.

This shore is fringed by dangerous rocks, the outer, named Flowers rock, with less than 6 feet water, lying nearly three-quarters of a mile from the shore. Cape Bonavista light-house, NW., open east of Cape Largent, until Green Island light-house, SW. by S., opens south of Catalina North head, leads clear of these shoals.

Little Catalina a boat harbor, is entered west of Cuckold head, a bold bluff, off which are two islets $1\frac{1}{2}$ miles westward of North head, the

intermediate coast having 5 fathoms water at a quarter of a mile distant. Rowland head is the termination of the line of coast west of Little Catalina, and forms the easts hore of a small cove with a beach of shingle. A low islet lies close off this head. Pigeon rock, small and low, lies 100 yards off-shore northeast of Shepherd point, and a shoal, with 10 feet water, is situated 250 yards ENE. from Pigeon rock. The church in southwest arm open south of Goodland point leads south of this shoal.

Catalina harbor, entered SW. a little more than $2\frac{1}{2}$ miles from North head, is dangerous of approach, and should not be attempted by a stranger, but may be readily recognized by the light-house on Green island that lies just south of the entrance. The fishermen are trustworthy pilots, and are nearly always to be found near the harbor in daytime. Off this harbor shoals extend $8\frac{1}{4}$ miles NE. by E., most of which break after heavy easterly gales, and render the harbor difficult to approach on those occasions. The Haypooks, with 6 fathoms water, lies NE. by $\frac{1}{4}$ E. $7\frac{1}{2}$ miles from Green island light-house, and the outer shoal, with 8 fathoms water, three-quarters of a mile farther in the same direction. The Serries, with 6 fathoms, lies NE. by E. $\frac{1}{4}$ E. 6 fathoms; Feather shoal, with 6 fathoms. E. by S. nearly 4 miles; Joe rock with 8 fathoms, E. $\frac{2}{3}$ N. $3\frac{1}{10}$ miles; Soldier rock, with 9 fathoms, ENE. $\frac{1}{2}$ E. $3\frac{1}{2}$ miles nearly; and Murphy rock, with 8 fathoms, NE. by E. $2\frac{3}{8}$ miles from Green island light-house. Poor shoal, a mile in length within the line of 5 fathoms, lying NE. and SW., is situated between one and two miles NE. $\frac{1}{2}$ E. from Green island light-house, and has 22 feet least water, on which the sea breaks heavily in easterly gales.

Brandies shoal consists of three heads with 4 feet least water, occupying a space 1,300 yards long N. and S. and about a quarter of a mile wide. The channel between the southwest extreme of Brandies shoal and Green island is 350 yards wide; that between the north extreme and the mainland is a third of a mile wide, and there is a passage a quarter of a mile wide between Brandies and Poor shoals.

The entrance of Catalina harbor is formed by Shepherd point on the north and Burnt point on the south, and is barely 700 yards wide, while about half a mile farther in, between White rock and the shoal of Goodland point, it is only 250 yards wide.

From Shepherd point the coast makes a curve to the westward round a cove, the west extreme of which, Goodland point, is low and sharp. Manuel islet, low and grassy, lies W. 300 yards from Goodland point and 100 yards from the east shore.

Green island, south of the entrance, is rugged and rocky, and is separated from the mainland by a channel 200 yards wide with $4\frac{1}{2}$ fathoms water in it. Shoal water surrounds this island, extending 775 yards from the south side and 200 yards in all other directions.

Light.—Near the south extreme of Green island is a white light-house having a red roof, from which at an elevation of 92 feet above high water is exhibited a *fixed* white light that should be visible from seaward between the bearings of SW. by S. and N. by E. from a distance of 15 miles in clear weather.

Fog-signal.—A Champion fog-horn, sounding by compressed air, is located on Green island, in a one-story wooden building, on a point of the island N. of the light-house.

This horn will be sounded during thick weather and snow storms for periods of *five seconds*, with intervals of silence of 35 seconds.

Position: Latitude, $48^{\circ} 30' 15''$ N.; longitude, $53^{\circ} 2' 20''$ W.

Burnt point is terminated by a low black islet about 10 feet high, and from it shoal water extends 100 yards. From it the south shore of the harbor trends to the westward half a mile, and then doubles back to form Southeast cove, 400 yards deep, and shallow.

Dangers.—A rock with 16 feet water lies ESE. $\frac{1}{4}$ E. 335 yards from Burnt point, with the Episcopal church in line with that point, and the same distance from the north point of Green island; Charlton rock with 6 feet water lies nearly in the middle of the entrance 335 yards from Shepherd point. A shoal with 12 feet least water lies E. 270 yards from Goodland point, with the summit of Manuel islet in line with that point; and a rock with 15 feet water lies S. by W. $\frac{3}{4}$ W. 150 yards from Goodland point. White rock with 4 feet water, lies 120 yards off the shore just east of the north point of Southeast cove, and Lowe rock with 12 feet water lies 225 yards NW. by W. $\frac{1}{2}$ W. from the same point, with Goodland point bearing N. by E.

The harbor divides within the entrance into Northeast and Southwest arms, the latter in continuation of the line of the entrance and the former nearly at right angles to it, the turning point being Manuel islet. A rock with 2 feet water, lies WNW. 200 yards from Manuel islet and nearly in the middle of the entrance to the Northeast arm, but may be avoided by keeping the north shore on board.

Northeast arm is $\frac{2}{3}$ of a mile long, but is barred at 800 yards from the entrance, and a rock with 3 feet water, lies 250 yards SW. of the bar. It affords anchorage for vessels drawing 9 feet water in a basin 400 yards in diameter with 2 fathoms, mud.

Southwest arm is three-quarters of a mile long and a quarter of a mile wide at the entrance, narrowing gradually to the head, from which shoal water extends 600 yards; the anchorage here is in 4 fathoms, mud.

Large vessels should anchor off the mouth of this arm in 5 fathoms, mud, taking care to have the south extreme of Northeast arm open west of Manuel islet to clear Lowe rock. A swell sets into the harbor and up Southwest arm after heavy gales, but not sufficient to endanger vessels.

Directions.—To enter Catalina harbor between the southwest extreme of Brandies shoal—which generally breaks—and Green island: after clearing the outer dangers, steer in with Burnt point in line with a church on the shore of the Northeast arm; until Green island light-house bears SW. by W., then steer about NW. by W. and round Burnt point, keeping Manuel islet wholly open of Goodland point, so as to avoid Charlton rock; keep on that mark until Rowland head, the west point of Little Catalina, is in line with Shepherd point, when the church in the Southwest arm will bear WSW. $\frac{3}{4}$ W. and must be kept on that bearing to pass between Lowe rock and the shoal off Goodland point.

To enter the harbor northward of the Brandies, steer in with Goodland point in line with the church on the north shore of the Southwest arm, until South head is shut in with Green island light-house, bearing nearly S.; then steer towards Burnt point, until Manuel islet is wholly open, and proceed as before. When entering north of Brandies shoal, the Roman Catholic church in Southwest arm is not readily distinguished by a stranger, as it is almost hidden by houses; there is, however, a square white house situated about 300 yards southward of the church, which kept almost in line with both Goodland and Shepherd points bearing about SW. by W., is a good mark for passing northward of Brandies shoal.

Tides.—It is high water in Catalina harbor, full and change, at 7h.; springs rise 6 feet, and neaps 4 feet.

Ragged harbor, a boat cove nearly 2 miles SSW. of Green island, is sheltered by Ragged islands, a group of rugged rocks 40 feet high, from which sunken rocks extend in all directions. Morris rock, the eastern of these, with 22 feet least water, is situated SSE., nearly a mile from Green island light-house. Burnt point, open east of Green island NW., leads east, and Dough-fig point, well open of South head, bearing SW. by S. leads south of this shoal.

South head is a wedge-shaped point 130 feet above high water, steep-to on the south side.

Low point is a rugged shelving point 4 miles from South head, with detached rocks and a rock with 6 feet on it 200 yards off. Low point grounds are two patches of 13 and 12 fathoms, lying SE. by E. $\frac{3}{4}$ E. 1,200 yards, and SE. $\frac{3}{4}$ E. one mile from the point. A shoal, with 8 fathoms water, lies S. 1,300 yards from Low point.

The coast between South head and Low point consists of a series of low bluffs facing table-lands, backed by a long range of hills about 600 feet above high water, the southwest termination of which, Norther head, is a steep bluff 580 feet high, a conspicuous object in entering Trinity bay. This coast is foul, and should not be approached nearer than 800 yards.

White ground, with least water of 3 fathoms, lies 400 yards off Norther point.

Green point is wedge-shaped, and divides Norther cove on the east from Green bay on the west. Green point rock, with 4 fathoms, lies 600 yards from this point.

Western head, the south point of Green bay, is a steep cliff, north of which are two water-falls. Off this head lie Western head grounds, two patches of 4 and 9 fathoms, the latter and outer distant 700 yards.

Horse Chops is an overhanging cliff, sloping from a saddle-shaped hill 265 feet high, having off it close to the shore a detached islet, Flat rock, 6 feet above high water.

To clear all dangers Bonaventure head should be kept open of Horse Chops SW. by W. $\frac{1}{4}$ W., until Green island light house is open of South head N. $\frac{1}{4}$ E. After easterly winds a strong current runs up Trinity bay along this shore. The fog hangs more over this coast than the opposite shore of the bay.

Trinity bay, having its entrance about 40 miles to the northward of St. John's harbor, is extensive and has many good anchorages on either side. The entrance is $15\frac{1}{2}$ miles wide, between Grates point on the south and Horse Chops on the north, thence the bay trends in a SW. by S. direction for 50 miles to its head.

In bad weather at night, or in a heavy sea, a stranger should not approach nearer than 7 miles northward or eastward of cape Bonavista, nor the land as far to the southwest as Catalina.

Trinity harbor, between Horse Chops and Bonaventure head, is considered one of the best and largest in Newfoundland. It is surrounded by hills ranging from 200 to 380 feet above the sea. A high, rocky, irregular peninsula extends from the western side of the harbor, dividing it into two portions, named Northwest and Southwest arms, in each of which are several small bays and coves. On the lower part of the peninsula facing the southeast are scattered the houses composing the town, and along the shore are several wharves.

A narrow strip of land projects half a mile N. by E. from the base of Salvage hill, on the southwest side of entrance, interlocking Skerwink head, and thus completely protecting Southwest arm and nearly land-locking the whole harbor. Off Fort point, the termination of this strip of land, is a small islet 20 feet high, named Admiral island, and 300 yards NW. by N. of the latter is Muscle rock having 10 feet water on it. Within the islet and rock a tongue of sand extends from the shore 300 yards NW. by N.

On the eastern shore and a quarter of a mile within Skerwink head are Herring rocks, between which and Admiral island, about the narrowest part of the entrance, the distance is 450 yards. In entering the

harbor a vessel should keep in mid-channel, giving Muscle rock a good berth, the position of which will be seen by the discolored water over it, and anchor where convenient.

Light.—Near the extreme of Fort point is a white light-house, from which is exhibited a *fixed* white light at an elevation of 75 feet, that should be visible in clear weather 11 miles.

Tides.—It is high water in Trinity harbor, full and change, at 7h. 10m. Springs rise $3\frac{1}{2}$ feet and neaps 2 feet.

Robinhood bay.—Skerwink head, the eastern point of entrance to Trinity harbor, forms also the western point of Robinhood bay, the entrance to which is a mile wide, and the bay extends northward $1\frac{1}{2}$ miles, narrowing towards the head. Here vessels frequently anchor to fish, in 7 to 17 fathoms water. Skerwink rocks, 40 feet high, are off the head of the same name, and Fox rock, with 15 feet water on it, lies 300 yards off Fox head on the east side of entrance.

Salmon cove, eastward of Robinhood bay, is separated from it by Fox head, the land of which is connected to the main at the head of the bays by a narrow sandy neck. Salmon cove is considered a good fishing place, and its shores are bold.

Bonaventure head, the north point of entrance to Smith sound, is a bold bluff 537 feet high, and skirted on the south by several cliffy rocks. Ragged islands, on the south side of the main entrance to Smith sound, are a group covering a space of 1,200 yards long east and west, by 300 yards broad; they are 115 feet high, with a ragged and barren appearance, and their east extreme is $2\frac{1}{2}$ miles SW. $\frac{1}{2}$ S. from the south side of Bonaventure head.

Ragged rock, on the south side of Ragged islands, dries 2 feet at low water springs, and lies with the east extreme of the islands bearing N. by E. $\frac{3}{4}$ E. distant half a mile, and the west extreme NW. by W. half a mile. New Bonaventure church, in line with the east end of Ragged islands, leads eastward of the rock; Wolf head, in line with the west end of the islands, leads westward of the rock.

Smith sound is 26 miles in length from Bonaventure head to the Bar at its head, which separates it from Northwest arm of Random sound; its breadth varies from half a mile to $1\frac{1}{2}$ miles, and the shores are steep and rocky until near the head, the hills near the coast rising from 400 to 700 feet high. In the lower reaches the depth of water is from 50 to 80 fathoms, and the shores so steep that no spot can be recommended for an anchorage, except the small harbors near the entrance now to be described.

Tides.—It is high water, full and change, in Smith sound at 7h. 8m. Springs rise $3\frac{1}{2}$ feet and neaps $2\frac{1}{2}$ feet.

Old Bonaventure harbor.—At about a mile W. by S. of the south part of Bonaventure head is Maiden point, and off the south side of the point, separated by a narrow channel, is a small, flat-topped, inaccessible islet, with detached rocks extending 100 yards from its south side. Between the head and the islet is Old Bonaventure, which runs north-west about a mile to an anchorage for small vessels within two islets, the western of which is 20 feet high, and the eastern 10 feet, with a channel 100 yards wide on either side of them; the western channel is 4 fathoms deep, the center 9 fathoms, and the eastern 6 fathoms. The anchorage is about 400 yards in extent in 6 or 7 fathoms water, mud. Cat cove, northward of Maiden islet, is small and about 400 yards wide, with from 8 to 15 fathoms water, sand and shells, but it affords no anchorage.

New Bonaventure harbor.—Between Maiden islet and Wolf head, $1\frac{1}{2}$ miles westward, are New Bonaventure, Broad cove, and Kerley harbor, all extending in about a mile, but open to the SSE. At the head of New Bonaventure and 300 yards from the shore there is a shoal patch with 3 fathoms water on it. The village of New Bonaventure is at the head of the bay on the eastern shore, and the church on its left is in a commanding position and a remarkable object. The settlement was formed for the purpose of cultivation, and although the bay is not at all times safe for shipping, the ice does not form so soon, and breaks up earlier than at Old Bonaventure.

Broad cove rocks, on the west side of New Bonaventure and in the entrance to Broad cove, dry 2 feet at low-water springs. New Bonaventure church, bearing northward of NNE. and well open of the point opposite the village, leads eastward of them.

Kerley harbor is an inlet half a mile long in a N. by W. direction and 200 yards wide, with a depth of 23 fathoms at the entrance, gradually shoaling to its head. It is separated from New Bonaventure and Broad cove by White point, which is low, and slopes from hills within it which are about 500 feet high; the point is steep-to.

British harbor.—Between Wolf head, south of Kerley harbor, and British harbor point, a distance of $1\frac{1}{2}$ miles, the coast is formed by a remarkable flat-topped cliff; the central part, from its appearance of being artificial, is called Battery point; behind it steep barren hills rise 600 and 700 feet above the sea. British harbor is formed between the point of this name and West point, a small, steep, rocky promontory, steep-to, half a mile southwest of it. The harbor runs in to the northward about a mile, and narrows to 200 yards, with a depth of 7 fathoms three-quarters of a mile from the entrance; within these narrows is the anchorage in 10 or 12 fathoms, mud, over a space of 300 yards. The head of the harbor forms into three little bays, on the shore of which are the houses of the fishermen.

A rock, with 4 feet water on it, lies outside the narrows 100 yards from the eastern shore; it may be avoided by keeping the western shore aboard.

Pope harbor.—From West point to Pope harbor, a little more than $1\frac{1}{2}$ miles, the coast is broken and rocky; midway is Derby cove, where there are a few houses and fishing stages behind a small peninsula; and a rock, with 3 feet water on it, lies 100 yards off a small cove 600 yards east of Pope harbor. At the entrance to Pope harbor there are two rocks above water, the western being 18 feet high; and there are other rocks uncovered eastward of the above, near the shore, within West point. The two western channels formed by these rocks are 225 yards wide, with deep water. Inside, the harbor opens out to half a mile east and west by a quarter of a mile-wide, with 4 and 5 fathoms, mud.

A sunken rock, with shoal water around it, lies 150 yards off the center of the north shore, and another rock lies about the same distance off the east shore. A large stream runs into the harbor on the north, draining a considerable tract of country, and good-sized spars are brought down by it. On the western side of the harbor is a snug basin 400 yards long, 150 yards wide, and 3 fathoms deep, called round harbor; the entrance to it is narrow, with 2 fathoms water.

Indian lookout is a remarkable hill immediately over the west shore of Pope harbor; its summit is a steep cliff 505 feet high.

Hickman islands, half a mile southwestward of Pope harbor, are a group of islets and rocks, extending a little more than half a mile parallel to the shore, the eastern and highest being 98 feet above the sea. The islets are separated from the coast by a channel 400 yards wide, carrying from 20 to 29 fathoms water; at 100 yards from the main are two rocks, one uncovers, the other has less than 6 feet water on it. Hickman harbor is a narrow inlet fronted by islets; it is 100 yards across at the entrance, and 4 fathoms deep 200 yards within, when it quickly narrows to 20 yards, and is choked with rocks.

Warwick harbor is three-quarters of a mile above Hickman islands, on the west side of a small peninsula 45 feet high. The entrance is narrow, but within it is $\frac{1}{4}$ of a mile east and west and 200 yards wide; much of this space is occupied by an islet, with rocks, in the channel on either side of it. A vessel drawing 6 feet water could be warped in.

At $2\frac{1}{2}$ miles southwestward of Warwick harbor is Burnt point, the coast between forming a slight bend, which is steep-to, and in some places formed by cliff. At $1\frac{1}{4}$ miles farther on is a small bay with a stream running into it. A rock, 8 feet high, lies close off its east point.

Irelands Eye island is about $2\frac{3}{4}$ miles in length NE. by N. and SW. by S., and a mile in breadth. Its coast line is deeply indented, and sev-

eral remarkable peaks rise from the island ; the highest, near the center, 440 feet above the sea, is steep and rocky on all sides, and at the northwest point is a conspicuous cone 370 feet high. A narrow channel, called the Thoroughfare, separates the island from the northeast point of Random island.

Irelands Eye point, the northeast extreme of the island, is a steep cliff, and $1\frac{1}{4}$ miles S. of it is the entrance to Irelands Eye harbor. About midway is Jacobs cove, with several small islets and rocks. Irelands Eye harbor, available for large boats, which can lie alongside the fishing stages, is an inlet, running in NW. by N. about half a mile and 90 yards wide, with an islet and several rocks above water at its entrance.

Tray Town harbor is westward of the highest peak of the island and half a mile from Irelands Eye harbor, the coast between being rocky. This harbor winds in NW. by N. and then turns to the southwest a distance of a mile, with an average breadth of 150 yards ; in the first reach the depth is 14 fathoms ; in the second it shoals to 9 feet east of an islet near the end of the reach, where it becomes narrow ; beyond the islet the depth is 12 feet.

At half a mile SW. of Tray Town harbor is a small basin called Round harbor, with 9 feet water, but the entrance being nearly dry at low water, it is of little value even to boats.

The southwest point of Irelands Eye island is of shelving rock ; thence the coast trends northward for $1\frac{1}{4}$ miles to the west point, having about midway a small rocky bay. To the eastward of the latter point, and at the base of the conical hill, is another small bay, a quarter of a mile deep, with a 9 foot patch near the center, and a rock above water off its west point. Irelands Eye point is 2 miles northeastward of this bay ; between which, and 200 yards from the shore a little east of Black Duck cove, is a patch with 4 feet water on it.

Gunner rock, awash at low water, lies about 400 yards to the S. by W. of the entrance to Tray Town harbor, and 150 yards from the shore. The harbor kept open, leads clear northward of it ; and Bonaventure head, seen between Ragged islands and north side of Anthony island bearing NE. $\frac{1}{2}$ N., leads to the southward of it and along shore between the rock and Black ledge.

Black ledge, southwest of Anthony island and fronting Round harbor, is .600 yards in length ; its east extreme has 6 feet water on it, and at its west extreme is a rock just covered at high water. Bonaventure head, in line with the east extreme of Anthony island, NE. by N., leads southward of the ledge, and Bonaventure head, between the east end of Ragged islands and the west side of Anthony island, leads northward, or between it and Irelands Eye island.

Green island is 121 feet above high water, nearly level on the summit, 700 yards in length east and west, and a quarter of a mile in breadth; its east extreme lies S. by W. $\frac{3}{4}$ W. $5\frac{1}{4}$ miles nearly from Bonaventure head, and from it Duck island bears SW. $\frac{3}{4}$ S. $2\frac{3}{4}$ miles. A bank, with from 7 to 9 fathoms water on it, extends half a mile from its northeast extreme and a quarter of a mile from its east side.

Anthony island is about three-quarters of a mile in length NE. and SW., nearly half a mile in breadth, and on its west side 208 feet above the sea. It lies W. by N. rather more than a mile from from Green island and SSW. $1\frac{6}{10}$ miles from the Ragged islands, and separated by a channel 600 yards wide from Irelands Eye island.

Duck island is 139 feet high, 800 yards in length north and south, and 400 yards in breadth; it slopes towards the east, and is divided into two peaks by a valley running in the direction of its length.

Shag islets extend NNE. 600 yards from the northern part of Duck island, with a channel between, 200 yards wide. These islets are 30 feet high, about 50 yards wide, and steep all round.

Indian islets, off the west point of Irelands Eye island, cover a space of 700 yards north and south; the outer and largest islet is 145 feet above the sea.

The Thoroughfare separates Irelands Eye from Random islands, and is $1\frac{1}{2}$ miles in length; at its south entrance are several rocky islets; the eastern one called Thoroughfare rock is 11 feet high, and between it and the southwest point of Irelands Eye island is the channel, 100 yards wide with 8 fathoms water. After passing the rock from the southward, bring it in line with the north point of Duck island, and bearing about SE. $\frac{1}{4}$ S. which will lead westward of Indian rock at the north end of the channel, and when Bonaventure head is open of Irelands Eye point, a vessel will be northwestward of the rock and in 10 fathoms water, on the south side of Smith sound.

Indian rock is the only rock in the Thoroughfare which is not always above water; from it the north extreme of the largest Indian islet bears about NE. $\frac{1}{4}$ E., distant 400 yards.

Random island, which separates Smith sound from Random sound, is 16 miles in length east and west and $6\frac{1}{2}$ miles in breadth. Its highest hill, Ginpicker, rises 843 feet above the sea, 4 miles from the coast, and midway between it and the sounds. The east coast of this island is much indented with small harbors, and off it are several islands and rocks, the most northern of which are Ragged islands.

Haydon point and Long harbor.—The coast of Random island, with the islets forming the west side of the Thoroughfare, is flat and of little elevation. Haydon point, the northeast extreme of the island, is rocky, and bordered close-to by rocks above water; the island of this name lies

1,200 yards eastward of the point, with rocks extending from it towards the shore. At a mile SW. of Haydon point on the north side of Random island is the entrance to Long harbor, a narrow inlet running to the south about three-quarters of a mile, carrying about 8 to 2 fathoms water to its head. An islet lies at the entrance, with deep water on either side; but a reef, which covers at high water, extends 100 yards from its southeast point, narrowing the passage on that side.

Lower Lance cove.—At three-quarters of a mile westward of Long harbor is an islet 12 feet high, and about 50 yards square, steep-to, with deep water between it and the shore, from which it is distant 200 yards. From this islet the coast continues southwestward almost straight for $4\frac{1}{2}$ miles, to Lower Lance cove; it is steep-to, and there is no anchorage. Lower Lance cove is open to the northeast and is 600 yards wide, but the depth of water being 42 fathoms, there is no anchorage.

Between Lower Lance cove and Bluff point, about $2\frac{3}{4}$ miles to the northwest of it, the coast forms a bend to the southwest, with several little coves separated by rocky points, where fishing stations have been established near small streams, the whole under the name of Britannia cove. As the vicinity of this cove is favorable for agriculture, a less migratory people than Newfoundland fishermen generally are, have settled here.

Lance cove rock, with 6 feet water on it, lies off Upper Lance cove; it is small, with 5 to 10 fathoms water round it, and 4 fathoms between it and the shore, from which it is distant 400 yards. Burnt point, shut in with Tilton head, leads north of it.

Anchorage.—There is anchorage in Burgoyne cove, west of Tilton head, in 12 fathoms water, 300 yards from the shore; it is a fair temporary anchorage, and sheltered from the strong winds which generally blow up and down the reach.

Snooks harbor.—From Bluff point on the south shore to Snooks harbor, the coast curves to the west with a general WSW. bend for $4\frac{1}{2}$ miles; it is steep, in places cliffy, with a few rocks 100 yards off. The harbor is half a mile square within the line of the coast, and there are 12 fathoms water, mud, three-quarters of a mile from its head.

Smith point on the north shore, directly opposite Snooks harbor, is steep-to; the coast between it and Burgoyne cove is bold, clear of danger, and much broken by numerous gorges and small valleys. Approaching Smith point the land is less broken; there are a few houses on the coast a mile east of the point, and 200 yards off them there are 4 fathoms water, but it suddenly deepens to 10 and 20 fathoms.

At $1\frac{1}{2}$ miles eastward of Smith point is Upper rocky bight, where there are 6 fathoms water, rocky bottom, at 600 yards from the beach, suddenly deepening to 30 fathoms.

The bar is the shallow channel connecting the head of Smith sound with the head of the Northwest arm of Random sound, and up to which they both gradually shoal. At high water it is a quarter of a mile wide; at low water spits of sand and stones stretch off both shores, leaving a narrow channel 2 feet deep, half a mile long.

At a mile above Smith point the depth in the center of the sound is 24 fathoms, thence to the Bar, a distance of 4 miles, the water shoals gradually. The breadth of the sound here is $\frac{1}{10}$ of a mile, and along either shore the soundings indicate a submarine terrace with 3 to 7 fathoms, shelving suddenly to the deep water of the channel.

Bakers loaf.—At the east end of Random island, the land rises 546 feet above the sea, forming a remarkable peak called Bakers loaf, overlooking several indentations on the south, viz: Northwest arm, Little and Deer harbors, Long cove, &c. From the northeast point of the island the coast is bold and rocky for $1\frac{1}{4}$ miles to Connor islet, which is low and lying at the entrance to the Northwest arm.

On the southwest side of Connor islet, separated from it about 100 yards, is Sullivan islet, 35 feet high, and between the latter and a flat promontory 46 feet high, called Silldown point, half a mile westward of it, is the entrance to the small inlet called Northwest arm. The western half of the entrance is obstructed by a bed of rocks, some of which are uncovered; the channel is between these rocks and Sullivan islet, and at the foot of Bakers loaf. The anchorage is about a quarter of a mile square, in 9 fathoms water, mud. There is a small nook inside Sullivan islet with 2 fathoms water, called Riders harbor.

A rock, with 6 feet water on it, lies just off the east end of Sullivan islet.

In rounding Connor and Sullivan islets, give them a berth of 200 yards, particularly at night; when south of Sullivan islet with Bakers loaf open, bring the south point of Duck island in line with the south point of Sullivan islet, bearing SE. by E. $\frac{3}{4}$ E., which leads into Northwest arm.

Little harbor.—The entrance to this small inlet is 400 yards wide, between the rocky islet south of Silldown point and the opposite shore, which is bold with a small rock above water off it. The inlet runs to the west about half a mile, and then turns to the S. by W. for 400 yards; it is narrow and carries a depth of 4 fathoms.

The coast between the above harbors and East head, 2 miles southward, is of low cliff; the hills over it are flat-topped, and the highest is 492 feet above the sea. East head is a cliff 88 feet high, and the north point of entrance to Long cove and Deer harbor.

In the cove W. by N. of the North Bird islet is a remarkable flat cliff, called, from its supposed resemblance to a fish flake, Cold East flake. North Bird islet is 112 feet high, 400 yards in length NW. and SE., 200

yards in breadth, and lies a mile north of East head, and a quarter of a mile from the shore. South Bird islet is 121 feet high, 400 yards in length NW. and SE., and 100 yards in breadth; it lies half a mile north of East head and 300 yards from the shore.

Long cove runs in N. by W. three-quarters of a mile; it is about 200 yards wide, and shoals from 20 fathoms at the entrance to 2 fathoms at its head. A little within the west point, and a third the distance across to the east shore, is a rock with 6 feet water on it.

Deer harbor is about half a mile west of Long cove; its entrance is 100 yards wide and 5 fathoms deep, between a small low islet on the north, and the rocks close off a point on the south. The harbor is 600 yards in length and about 200 yards in breadth, and has from 5 to 9 fathoms water. A small sunken rock lies close to the shore south of a waterfall.

The approach to these harbors is between East head and Black rock, north of Verge island; from East head to Long cove the distance is about three-quarters of a mile, the coast being low cliff with small indentations. At 400 yards east of Long cove is a reef of rocks extending 225 yards from the coast.

Verge island lies about a quarter of a mile from the coast, between East head and East Random head, and covers, with the rocks and islets off it, a space of a mile north and south by half a mile in breadth; it is 204 feet above the sea, 700 yards in length east and west, and a quarter of a mile in breadth. From its northwest end, rocky islets extend half a mile to the NNE., terminating in a small black rock about 30 feet high; from the southwest end, rocky islets extend 600 yards to the southward, the largest, Rat island, being 65 feet high. At the southeast end, Copper islet, 130 feet above the sea, lies 600 yards off with rocks between; and 300 yards off the northeast end of the island is a rock called Verge rock.

Deer rock.—This small rock has 4 feet water on it, and is generally marked by a break, except in a smooth sea at high water. It lies with the bluff of Bonaventure head in line with the saddle of Duck island bearing NNE. $\frac{1}{4}$ E. and the north point of entrance to Deer harbor in line with Black rock WNW.

Gun ledge, with $6\frac{1}{2}$ and $7\frac{1}{2}$ fathoms water on it, extends about half a mile N. by E. of Deer rock with 21 fathoms between. Bonaventure head, midway between Duck and Green islands, NNE., leads southeastward of these dangers; Ginpicker hill, in line with the north point of entrance to Deer harbor W. $\frac{1}{4}$ N., leads northward of the Gun ledge; and Bakers loaf, in line with the west points of Bird islets N. by W. $\frac{1}{4}$ W., leads westward of the dangers.

Random head harbor, on the north side of East Random head, is about half a mile square, with from 10 to 18 fathoms water; the south

and west shores are much indented, with rocks extending 300 yards off. The north shore is bold, and here small vessels may anchor in a bight, but with this exception the harbor is not recommended. Pigeon islet, on the north side of entrance, is 400 yards in length north and south 100 yards wide, level, and about 40 feet above the sea; from it a reef extends SE. by S. 300 yards, terminating in Mouse rock, awash. The passage between Mouse rock and the south shore is 600 yards wide.

East Random head, the north point of entrance to Random sound, is 512 feet high, and the termination of a range of hills, the highest of which is 808 feet above the sea; the eastern extreme of the head consists of several quoin-shaped masses, which appear from the head as landslips. A bank with 10 fathoms water on it extends 400 yards off the head.

West Random head is the south point of the entrance to Random sound, and bears about SW. $3\frac{1}{2}$ miles nearly from East Random head. Its summit is 291 feet high, level, and the east extreme of the land is a high cliff, just separated by a chasm from the main part of the head. Rocks mostly above water extend from it about 200 yards eastward.

Random sound.—The entrance to this sound is between East and West Random heads; at $5\frac{1}{2}$ miles within East Random head the sound is divided into two branches by a tongue of land 11 miles in length, in an east and west direction, and about 3 miles in breadth; the eastern termination of which, named Middle cliff, faces the entrances, and is a steep cliff, 357 feet high. The depth of water between West Random head and the north shore is from 50 to 185 fathoms, and the shores of the sound are generally steep-to.

Northwest arm.—At a little less than half a mile westward of East Random head and 100 yards off a steep shelving point, is a rock with less than 6 feet water on it, and another rock, awash, lies close off the east side of the point; at about three-quarters of a mile farther in there are some rocky islets, and about 200 yards from the shore a patch with 3 fathoms water on it; a little more than $1\frac{1}{2}$ miles farther to the westward is an islet 40 feet high, and 800 yards farther in another islet at the entrance to Salmon cove; these latter islets are separated from the shore by deep water.

Salmon cove extends in 800 yards, and at its head is a salmon fishing station; from this cove the cove trends WNW. and NW. for 3 miles to Strong islands in Northwest arm. The coast from East Random head to these islands is in general steep and cliffy, the hills close over it ranging from 400 to 700 feet high.

Strong islands consist of two principal islands, one 123 feet, the other 145 feet high, with a few rocks above water. The north side of these islands form with the coast an inlet called Strong tickle, which is nearly

three-quarters of a mile in length and 100 yards wide, with 10 to 4 fathoms water, except near its head, where there are $1\frac{1}{2}$ fathoms. The channel between the main islands has 5 fathoms.

Quarry rock, lying 400 yards SW. by S. of the south point of the west Strong island has 12 feet water on it. Passenger point, north of Middle cliff, open of Holloway rock, SE. $\frac{1}{4}$ S., leads eastward of quarry rock; the point just westward of Tolt point, open north of Gooseberry islet about WSW. $\frac{3}{4}$ W., leads north of the rock; and the same point, open south of Gooseberry islet, W. by S., leads south of the rock.

Gooseberry islet lies nearly in mid-channel, $1\frac{1}{2}$ miles westward of Strong islands; it is small and 66 feet high. A rocky shoal, with $4\frac{3}{4}$ fathoms water on it, lies a quarter of a mile N. by E. of Gooseberry islet, and another with $5\frac{1}{2}$ fathoms on it, 800 yards NW. by W. $\frac{3}{4}$ W. of the islet. From this islet, the first reach of the Northwest arm of Random sound continues to the westward for $7\frac{1}{2}$ miles, with the depth in mid-channel decreasing from 90 to 60 fathoms; the shore is steep-to, and there is no anchorage.

Passenger point.—From Middle cliff, the eastern extremity of the land separating the two arms of the sound, the coast of steep cliff trends $1\frac{1}{4}$ miles northwestward to Passenger point, the south point of entrance to the Northwest arm, at 800 yards beyond which is Holloway rock, close to the shore, and the termination of a steep point. The latter point separates two coves, and half a mile to the westward of it is Pudding point, a rocky termination of a ridge of hills, which are 548 feet above the sea. At three-quarters of a mile farther westward is Black Duck cove, a quarter of a mile deep, with from 20 to 5 fathoms water.

Hickman harbor, opposite Black Duck cove, is 600 yards wide at its entrance, and runs in northwest for three-quarters of a mile; on its east shore is a bed of rocks with from $1\frac{1}{2}$ to 6 feet water on them, elsewhere there are from 18 to 8 fathoms water, gravel and mud. This harbor is a mile from west Strong island, and at about two-thirds the distance there is a slate quarry. The coast is clear of danger.

Maggotty cove.—At nearly $1\frac{3}{4}$ miles westward of Black Duck cove on the south shore is a remarkable cone 550 feet high, called the Tolt; between it and Maggotty cove the coast forms a curve to the north, and its extremity is named Tolt point. Maggotty cove is $3\frac{1}{2}$ miles above the Tolt, and has 25 fathoms water 400 yards from the shore; a large stream runs into it, at the mouth of which is a saw-mill. The valley of this stream runs southward in the direction of Hatchers cove in the Southwest arm, with low land right across.

South bight.—On the south shore, in the elbow of Northwest arm, is a bay, named South bight; here the coast trends northward, and about three-quarters of a mile on is another bay, named the Bottom; they

are each about 600 yards wide and a quarter of a mile deep, with 12 fathoms water 600 yards from the shore.

Bald Nap and Forster rocks.—From the South bight the sound is $2\frac{1}{2}$ miles across to the Bald Nap and Forster points on the eastern shore; these points are shelving and rocky, with patches of rock and shoal water off them. Bald Nap rock, with 9 feet water on it, lies 600 yards SW. by W. nearly from Bald Nap point. The Forster rocks extend off rather more than a quarter of a mile from the point of the same name, and the outer rock, with 6 feet water on it, lies a mile NW. from Bald Nap rock, with 10 to 6 fathoms between at half a mile from the shore.

Gooseberry islet, just open of Lady point, leads southward of these dangers; and Red point hill, 517 feet high, in line with Bluff point or Red man, leads westward of them.

Second reach.—Beyond the Bald Nap rocks Second reach runs NNW. 7 miles to the Bar. On the eastern side the land is wooded, undulating, and about 150 feet high. On the western side, northward of the Bottom, the land rises steeply, 667 feet above the sea, for about 2 miles to Bluff point, with the coast mostly of cliff. At the extremity of Bluff point is a shingle spit, on which is a curious upright pinnacle rock called the Red man; from this to Red point, nearly 3 miles farther on, the coast becomes low. Lower Shoal harbor, $1\frac{1}{2}$ miles northward of Bluff point, dries at low water, and rocks which are covered at high water lie 200 yards off the upper point; a large stream runs into it.

Red point is a low cliff with a remarkable hill over it, 517 feet high. The sound here, which is the narrowest part, is only half a mile across to Brown Mead on the east shore. Brown Mead is a spit of sand a few feet above high water, covered with grass and brushwood.

Shoal harbor, on the west shore above Red point, is three-quarters of a mile wide at the entrance, and at high water extends a mile within the line of coast, but the deposit from a large stream which runs into it dries out half a mile. The depth gradually increases to 5 fathoms, three-quarters of a mile from the dry bank.

Anchorage.—There is a good anchorage from a line between Red point and Brown Mead to the Bar, a space of $1\frac{1}{2}$ miles in length by half a mile wide. The depth decreases gradually from 24 fathoms in approaching the Bar, but rather suddenly towards either shore.

Southwest arm of Random sound runs in about 14 miles from West Random head with an average breadth of a mile; and from 175 fathoms water at the entrance, the depth decreases to 50 fathoms at a mile from the head of the sound.

Fox harbor.—The coast between West Random head and Fox islet $1\frac{1}{2}$ miles westward is steep and broken, with rocks 100 yards off. Fox

islet is 30 yards in length, and 200 yards in breadth, with steep cliff 93 feet high on the north. The entrance to the small harbor of the same name is on the east side of the islet, and about 200 yards wide. Within, the space is 400 yards in extent, but encumbered with rocks, and fit only for large boats which lie under the east head close to the shore.

Little Heartsease harbor.—At half a mile from Fox islet is a bluff promontory 309 feet high; thence to Little Heartsease, $1\frac{1}{2}$ miles farther on, the coast is low and rocky. Little Heartsease runs in SSW. three-quarters of a mile, with several arms, one of which reaches within 400 yards of the pond at the head of Heartsease. The harbor is free from danger, with an average breadth of 150 yards, and the depth decreases from 5 fathoms at the entrance to 2 fathoms at the head. There is a rock with 3 feet water on it, nearly closing up the entrance of the first arm on the eastern shore.

Hodge hole.—At 600 yards west of Little Heartsease is a cliffy point 135 feet high, with a rock 3 feet above high water close off it. At about $1\frac{1}{2}$ miles beyond this is Hodge hole, with an islet in the middle of it, on the southwest side of which is a space about 200 yards square, where small vessels may anchor.

Rocky harbor.—On the north coast, three-quarters of a mile southward of Middle cliff and 100 yards from the shore, is Southwest rock, 8 feet above high water, and immediately west of it is Rocky harbor, which runs in northwest half a mile by 300 yards wide. A rock awash at low water lies near the center of the harbor, leaving a channel along the east shore, but the west shore is foul. Long cove, a mile further on, is small, with 5 fathoms water. The coast between is steep cliff and 316 feet high.

St. Jones within harbor is $4\frac{3}{4}$ miles westward of West Random head. It is 800 yards wide at the entrance, and trends in NNW. half a mile, with 20 fathoms water, and then NW. another half a mile to its head. In the inner portion the breadth is 400 yards, and there is good anchorage in 7 to 5 fathoms water. Off the east point of entrance is a small rock above water. There is also anchorage for small vessels in 5 fathoms near the head of Hatchers cove, $2\frac{1}{2}$ miles above St. Jones Within harbor.

North bight, $1\frac{1}{2}$ miles from the head of the Southwest arm, is 800 yards deep and about the same in breadth, with from 8 to 4 fathoms water; the bottom is strewn with bowlders, many of them 6 feet in diameter, particularly on the eastern shore. A shoal with 12 feet water on it extends from the west point 300 yards.

Black brook is the name of a stream running into the head of the arm. There is anchorage in 10 to 3 fathoms, mud, half a mile from its mouth.

Long island, on the southeast side of West Random head, is about a third of a mile from the shore and immediately north of the entrance to Heartsease; it is about three-quarters of a mile in length NE. and SW., 400 yards in breadth, and 132 feet high, its southeast coast being steep cliff. A rock, just above water, lies 100 yards off it and 600 yards from its southwest extreme.

Green islets are a group of flat-topped rocks or islets, 63 feet above high water, covering a space 400 yards square, lying a little more than half a mile E. by N. of Long island, with $3\frac{1}{2}$ fathoms water between, and about the same distance from West Random head.

Heartsease ledge, with from $2\frac{1}{2}$ to 10 fathoms water on it, extends ENE., about three-quarters of a mile from Green islets with a breadth of 600 yards. The northwest extreme of West Random head kept open, leads north of the ledge; Heartsease church, in line with the north rock of Green islets just clears its northwest side; and Duck island, open of East Random head, leads southeast of the ledge.

White rocks, off the entrance to Heartsease, are 9 feet above water, and a few yards in extent. At 200 yards westward of them is a rock on which the sea generally breaks, and at a quarter of a mile in the same direction the depth is less than 10 fathoms; on the north and east sides the rocks are steep-to. Heartsease church, open south of Long island, leads westward of the rock.

Beaver rock, with 3 fathoms water on it, lies with the White rocks bearing NE. by N. distant $1\frac{1}{2}$ miles nearly, and the west end of Heartsease beach, in line with the west side of Heartsease point NNE. $\frac{3}{4}$ E. West Random head, touching the northeast point of Long island, leads southeast of the rock.

Heartsease is a long narrow inlet running in westward about 2 miles, and carrying from 24 fathoms water at the entrance to shallow water at its head. The northeast point of entrance is a small peninsula connected to the mainland by a neck of shingle 300 yards long, and 9 feet above high water. A hundred feet up the hill over it is the church, in the form of a large ordinary house, isolated and conspicuous.

The southwest point of entrance is SW. by W. 700 yards from the northeast point. The breadth of the inlet is 400 yards for nearly a mile, with 18 to 10 fathoms water, mud; then about 200 yards for nine-tenths of a mile with 10 to 7 fathoms, mud, beyond which is a pond. On the north shore, opposite the southwest point, are two rocks, each with 2 feet water on it, only dangers, and should be avoided. A swell sets into the entrance with easterly gales, but not sufficient to affect a vessel off Ganny cove, on the north shore half a mile within the entrance. The passage in north or south of the White rocks is clear of danger. There is a channel 150 yards wide between Long island and the northeast point of entrance to Heartsease.

Bald head.—The coast from the entrance to Heartsease trends S. 2 miles to Bald head; it is rugged, with several large steep rocks close off it, the land within being broken into numerous hills; over the coast they reach 570 feet above the sea, and at $1\frac{1}{2}$ miles within, the highest, 659 feet. Bald head is a bold cliffy bluff, 489 feet high; a valley runs at its back parallel to the coast, giving it a remarkable semi-isolated appearance.

St. Jones head, about 2 miles SSW. from the south part of Bald head, is 612 feet high, bold, and cliffy; the coast between the heads is of the same character, and about half way is Round harbor.

Round harbor.—The entrance to this little harbor is only about 120 yards wide, and is not easily recognized in the straight cliffy coast which extends on either side of it, but when well in with the land the south head, a narrow strip, 210 feet high, projecting northward, will be seen against the higher land behind it. The entrance is 3 fathoms deep, and runs in about 200 yards, when it turns abruptly to the south to the anchorage behind the south head. The harbor is less than 400 yards in length, 200 yards wide, with a depth of 3 to 5 fathoms, mud.

Seal island, between St. Jones head and St. Jones harbor, lies 100 yards from the shore, and parallel to it. It is 800 yards in length, and the extreme breadth 300 yards; it consists of two principal portions, the northern 60 feet high, and the southern 148 feet, connected by a low neck, on which are several rocky hummocks.

St. Jones islet, off the entrance to St. Jones harbor, lies SE. by E. 1,200 yards from the north head of the harbor, and S. by W. $\frac{1}{3}$ W. $4\frac{1}{2}$ miles from the south part of Bald head. The islet is small, but 67 feet high, and inaccessible; it is steep to on the east side, but rocks extend 270 yards to the west from its west side.

St. Jones Harbor is a narrow inlet running in W. 3 miles; when seen on this bearing it appears remarkable from its steep shores appearing as cliff behind cliff to the head. Crown hill, steep and rugged, rises 820 feet high at the head of the harbor, and with the cone-shaped hills rising abruptly from the land north of the harbor are sufficient to indicate its position; St. Jones islet is a good mark for the entrance.

The average breadth of the harbor for $1\frac{1}{2}$ miles is 200 yards, with 20 fathoms water at the entrance, shoaling to $6\frac{1}{2}$ fathoms, rocky bottom. At about three-quarters of a mile within the north head and on the same shore is a small bay with several rocks extending a short distance beyond the line of the coast. Within the first $1\frac{1}{2}$ miles the harbor narrows to 140 yards and carries $4\frac{1}{2}$ fathoms for about half a mile, when it opens out to the head, which is formed by two bays. The south bay is small in extent; on its southeastern shore are some small islets and rocks 135 yards off, leaving an anchorage northwestward of them in 7 to 4

fathoms water, mud. A small arm, 20 to 30 yards wide, with 2 fathoms water, runs southeastward from the head of the bay to within 200 yards of the Northeast arm of Deer harbor. The northwest bay is the extreme head of the harbor; it is about 600 yards in length, N. by E. and S. by W., and 400 yards wide, with 9 to 4 fathoms, mud.

Deer harbor is an extensive narrow inlet running about $4\frac{1}{2}$ miles W. by N. indented with small arms and bays, and until nearly half way in is encumbered with islets. Immediately within the entrance it opens out to more than three-quarters of a mile in extent, a portion of it being taken up by Grub island, but arms extend to the northeast and eastward. At half a mile W. by N. of the north point of Grub island is the entrance of the main portion of the inlet, which is narrowed to 140 yards by an islet 128 feet high, and with 7 fathoms water; thence the inlet quickly widens to about 800 yards, but diminishes again towards the inner part to 500 yards, and the depth of water decreases from 25 fathoms at the outer entrance to the shallows at its head.

Deer harbor head, the north point of entrance, is 400 feet high, and on its southeast side clear of danger; between the head and Robinson point, a mile beyond it, there are several rocky islets, the outer, named Green islet, is 24 feet high, and the western, Poor Boy islet, 20 feet high; shallow ground, with 3 and $3\frac{1}{2}$ fathoms water on it, extends a little southward from this latter islet; and broken ground with $1\frac{1}{2}$ fathoms on it, skirts Robinson point 300 yards off.

Poor Boy ledge, with 15 feet water on it, is 200 yards in extent, steep to all round, and lies SSE. 400 yards from Poor Boy islet. To clear it, keep St. Jones islet well open of Deer harbor head, until Crown hill is nearly in line with the northeast extreme of Grub island.

Big rock, with $3\frac{1}{2}$ fathoms water on it, is small and steep to all round; it lies nearly in the middle of the entrance between Green islet and Big island, with the east end of St. Jones islet in line with Deer harbor head, and Tea cove point NW. by W. $\frac{1}{4}$ W. Crown hill, in line with the northeast point of Grub island, leads eastward of the rock; Sophia head, open of Robinson point, leads westward, and St. Jones islet, open of Deer harbor head, leads southward of the rock.

Big island on the south side of the entrance is 218 feet high, 800 yards in length NNE. and SSW., and 400 yards in breadth, being separated by only a narrow channel from the mainland, which is higher, it is not easily distinguished when making the harbor. A rock, on which the sea generally breaks, lies 40 yards off its north point. Tea cove point, half a mile northward of Big island, is shelving and steep to. Between this point and Poor Boy islet, and the shore of Robinson point, the distance is one-half mile and the narrowest part of the entrance.

Grub island, lying about half a mile within Tea cove point, is 800 yards in length NE. and SW., 400 yards in breadth, at the south end 195 feet high, and separated from the mainland by a narrow channel 6 fathoms deep.

Southeast arm, north of Robinson point, runs back eastward three-quarters of a mile, is 200 yards wide, and from 12 to 7 fathoms deep; its head is separated from Birch cove on the seacoast by a low isthmus 400 yards in breadth. To the eastward of Robinson point, a little bay 200 yards wide runs in to the south 200 yards with 7 fathoms water; and east of Sophia head is another little bay, running in N. by E. 300 yards, and narrow.

Northeast arm.—Sophia head is 257 feet high and separates Southeast arm from Northeast arm. The latter runs in NE. by N. 800 yards with a breadth of 300 yards, having from 7 to 4 fathoms water.

Anchorage.—There is fair anchorage for small vessels in the bay west of Grub island, in from 20 to 7 fathoms water, over a space of 600 yards N. and S. by 400 yards wide. At the head of this bay is a small arm, 30 yards in breadth, with a depth of $1\frac{1}{2}$ fathoms, running in W. 800 yards.

Directions.—With a fair wind bring Crown hill in line with the northeast point of Grub island, and steer NW. $\frac{1}{2}$ W. between Poor Boy ledge and Big rock—Crown hill will soon be lost sight of, being behind the near range—until the east extreme of Big island is in line with Tea cove point. Then steer N. by W. $\frac{3}{4}$ W., round Grub island, and anchor as convenient.

To enter the harbor west of Big rock, open Sophia head of Robinson point, and steer with the head bearing NNW. $\frac{1}{4}$ W. until the south end of Poor Boy islet is seen between Green islet and Deer harbor head. Then steer about NW. $\frac{1}{2}$ W. in mid-channel, being careful to avoid the shoal extending from Robinson point, and when the east point of Big island is in line with Tea cove point, proceed as before. In working, a vessel should pass west of Big rock.

Should a vessel wish to enter the inner portion of the inlet, a rock with 5 feet water on it, lying 250 yards within the entrance, should be avoided by keeping a little to the southward of the entrance. The channel is then between Gooseberry islet and a patch of rocks 5 feet above water, 300 yards to the NNW.; having passed these, a vessel may anchor anywhere in from 10 to 4 fathoms water, until within half a mile of the head, where there are only $1\frac{1}{2}$ fathoms. Two considerable streams here run into the inlet, the banks of which dry out a quarter of a mile.

Shoal bay, southwest of Big island, is about $1\frac{1}{4}$ miles deep, narrow, encumbered with small islets and rocks, open to the eastward, and has nothing to recommend it to the seaman. Its north shore is steep cliff,

and at its head on the south is a bight, about 400 yards deep, with 6 and 7 fathoms water, rocky bottom, called Shoal harbor. On the south side of the entrance are Harbor rocks, 37 feet high, lying about 600 yards northward of Thames harbor point, and a reef awash extends 400 yards to the northeast of the rocks. The passage into the bay between the reef and south end of Big island is 700 wide.

Thames harbor point is separated from the rocks by a channel 200 yards wide, with 2 fathoms water. The point is the east extreme of a flat island 40 feet high, which has a channel between it and the mainland 100 yards wide, and where large fishing boats lie in 2 fathoms water, but the south entrance is dry at low tide.

Goose cove, on the south side of Shoal bay, is about 800 yards deep, 200 yards wide, with 14 to 9 fathoms water, rocky bottom. The Riff-raffs are several rocks extending 250 yards to the northeast from the west point of Goose cove; the outer rock, awash, bears WSW. $\frac{1}{2}$ W. 900 yards from the north extreme of the Harbor rocks.

Copper island, south of the Thames harbor point, is 400 yards in length north and south, broken and 82 feet high, and from its southwest side rocks extend in that direction 600 yards; the most distant is 15 feet above water. At a mile SW. $\frac{1}{2}$ S. of the island is a patch of slate rocks, 300 yards from the shore; and about SSW. $4\frac{1}{2}$ miles is the northeast point of Bull island, on the north side of entrance to the bay of the same name, the intervening coast being bold and rocky. Niagara point is the northern termination of a steep cliff, rather more than one and a half miles from the northeast point of Bull island; a narrow ledge, 600 yards in length, NNE. and SSW., with 9 fathoms least water on it, lies NE. $\frac{3}{4}$ E. distant $1\frac{1}{2}$ miles from Niagara point and about half a mile from the shore.

Centre hill, an isolated cone, is the highest land in this neighborhood, and separates the head of Deer harbor from that of Bull arm; it is 1,081 feet above the level of the sea and rises 540 feet above an elevated broken plateau. It overlooks the isthmus of Avalon, and has a commanding view of Placentia and Trinity bay; but although the highest land it is not the most remarkable from Trinity bay, as the rocky hills in the foreground of less elevation attract attention, particularly Crown hill and two cones north of St. Jones harbor, 786 and 878 feet high.

Bull island, $1\frac{1}{2}$ miles long and partially covered with wood, lies NE. $\frac{3}{4}$ N. 3 miles from Masters head, and NW. by N. 5 miles from Tickle harbor point; its center is 281 feet above the sea. On the northern side of this island, near the east extreme, is an excellent little harbor for fishing craft, quite landlocked, with a sufficient supply of fresh water, and in stormy weather 50 to 60 small schooners and boats may be seen taking shelter in it. A rock, awash at low water, lies near the western side of

its entrance, but this danger may be easily avoided by keeping the gravelly point on the opposite shore close aboard.

Bull island is separated from the main by a channel half a mile wide, called Bull island tickle. Near the center of the tickle, rather towards the eastern entrance, is a ledge, 6 feet above water, named Flat rocks, extending ENE. 100 yards; and SSE. the same distance from the south end of the ledge are two sunken rocks with about 2 feet water on them; the north extreme of the ledge is steep-to. The shores of the tickle are otherwise bold and steep-to, but the best passage is west of Flat rocks.

Temporary anchorage may be obtained at a third of a mile southwestward of Flat rocks, in from 10 to 12 fathoms water over a coarse mixed bottom. A current, principally depending on the wind, sets through the tickle at the rate of half a mile an hour.

Tides.—It is high water at Bull island, full and change, at 7h. 22m.; springs rise from 3 to 4 feet, neaps 1 to 2 feet.

Rix harbor.—To the northwestward of the west end of Bull island is Rix harbor, with a depth of 7 fathoms, affording good anchorage for small vessels. Chalk rocks at the entrance to the harbor are about 100 yards in extent N. and S. and consist of several heads, all of which are a few feet above water. Small vessels may enter either side of the rocks, the shores being bold and steep-to.

Water is easily procured here from the streams which run into the head of Rix harbor.

Bull arm.—The entrance to this inlet or arm is 3 miles wide between Bull island and Masters head; from thence it takes a NNW. $\frac{1}{2}$ W. direction for 7 miles, and then trends WNW. $\frac{1}{4}$ W. for 2 miles to its head. There are no dangers at a moderate distance from either shore, and no good anchorage except at the head of the arm.

A rocky patch, called Porcupine reef, with 9 $\frac{1}{2}$ fathoms water on it, lies nearly in mid-channel about NW. by W. $\frac{1}{4}$ W. 2 $\frac{1}{2}$ miles from the west end of Bull island.

Mosquito coves.—At 5 $\frac{1}{2}$ miles from Masters head, on the west side of Bull arm, is Great Mosquito cove, at the head of which there is a depth of 7 fathoms at 200 yards from the shore. There are several other small coves on this side of the arm adapted for fishing boats, the largest of which is Little Mosquito cove, but a rock, with 5 feet water on it, lies near the middle of the entrance.

Masters head, the west point of entrance to Bull arm, forms the north point of Rautem cove, and has deep water close-to, but at half a mile southward of it there is a spot with 15 fathoms water.

Tickle harbor point, 5 $\frac{1}{2}$ miles ESE. $\frac{3}{4}$ E. of Masters head, is the termination of a narrow promontory extending 5 miles in a northerly direction from the head of Trinity bay, and dividing it into two nearly

equal parts. The land near the extremity of the point rises 432 feet above the sea, and continues with some undulations about the same height.

Bower ledge.—This rocky patch, with 8 fathoms least water on it, lies NW. $\frac{3}{4}$ W. nearly $2\frac{1}{2}$ miles from Tickle harbor point, and when on the ledge Hope-all head shows open of Tickle harbor point, and Western head, bearing WSW. $\frac{1}{2}$ W., is in line with the south part of Flat hill. Uneven ground extends half a mile to the northeastward of the ledge.

Tickle bay, on the west side of Tickle harbor point, is an excellent place for fish; but though the water is comparatively shallow, and the bottom good near the head of the bay, it is not a safe anchorage, as a swell nearly always sets in, and with east or northeast gales it is very dangerous.

Hudson bank, three-quarters of a mile from the east shore of Tickle bay is a rocky bank running parallel with the land for a mile. At the outer or north extreme of the bank is a rock with 15 feet water on it, called Hudson rock; it bears SW. $\frac{3}{4}$ W. 2 miles nearly from the outer part of Tickle harbor point.

Colliers arm is formed in the southeast corner of Tickle bay, at the entrance of a salt water lake, and is protected by a small islet and a reef of rocks. The entrance is only 200 yards wide with 4 feet in it at low water. The ebb stream sets out very strongly, and over a sandy spit, so that none but those locally acquainted should attempt it. A few families reside here in ill-constructed wooden houses, and their attention is altogether directed to fishing.

Big and Little Chance coves.—These two small bays, lying 4 miles to the northwestward of Colliers arm, and W. by S. $4\frac{1}{2}$ miles from Tickle harbor point, are only fit for small vessels during the summer months. The best shelter will be found in a small bay on the north side of Little Chance cove. In entering either cove, the north points must be kept aboard. About a dozen families reside on the shores of these coves. A rock, with 6 feet water on it, lies NNW. 600 yards from Green head, the south point of Big Chance cove, and between it and Green head is a rock that dries.

Rantem cove is 2 miles to the northwestward of the Chance coves. The water in it is very deep, but anchorage and good shelter may be obtained by standing well up into its north or northwest arms. Near the middle of this cove, and rather on the north side, is Boulton islet, 20 feet above high water. There are also two sunken rocks rather in the way of a vessel going up the northwest arm; one with 2 feet on it, lying SE. $\frac{3}{4}$ E. 300 yards, and the other, with 5 feet, S. $\frac{3}{4}$ W. 300 yards from Boulton islet; the shores of the cove are steep-to.

The southwest arm of the cove is too much exposed from the northward for an anchorage. A fresh-water stream running into it is considered excellent for trout fishing.

The shores of Rantem cove are well covered with wood of a sufficient size for making boats' masts, and small studding sail booms. There are no inhabitants.

Baccalieu island, off the termination of the peninsula separating Trinity and Conceptions bays, is 3 miles in length, about three-quarters of a mile in breadth, and almost inaccessible.

Light.—On the northern part of Baccalieu island is a circular brick light-house, which exhibits at 380 feet above high water a white light showing a *flash* every *twenty seconds*, which may be seen in clear weather at a distance of 28 miles; but it will be obscured when the southern extreme of the island bears N. $\frac{1}{4}$ W., and is distant less than 8 miles.

The keeper's dwelling is a detached square white building with a red roof. The light-tower is 6 miles E. by S. of Grates point.

- **Old Perlican island**, 6 miles SW. by S. of Grates point, on the south-east side of entrance to Trinity bay, is half a mile in diameter, nearly round, 115 feet high, with a channel half a mile wide between it and the mainland. To the southward of it is summer anchorage for small vessels in 3 to 5 fathoms water, but a swell sets in with NE. gales. Give the island a berth of 400 yards, to avoid the shallow ground extending from it, and anchor with its extremes bearing WNW. and N. by E. The channel east of the island is fit only for boats.

Tides.—It is high water, full and change, at Old Perlican anchorage at 6h. 46m.; springs rise $3\frac{1}{2}$ feet, neaps $2\frac{1}{4}$ feet.

Salvage point is a rugged beach of stones around what appears to be a steep gravel cliff, behind which the hills rise between 400 and 500 feet high. The rocks of the same name lie $1\frac{3}{4}$ miles N. by E. $\frac{1}{4}$ E. of the point, and from it to Kings head, 7 miles southwestward, the coast is so encumbered by dangers with deep water between them, that a stranger should on no account approach nearer than to have Grates point bearing ENE. $\frac{1}{4}$ E. until the Sugar loaf—rising from the shore 415 feet high, $3\frac{1}{2}$ miles southwest of Kings head—is well open of Kings head S. by W. $\frac{1}{2}$ W.

Dangers.—The following are the dangers which lie off this part of the coast: The Riff-raffs, a patch of rocks 800 yards in length NE. and SW., and 100 yards in breadth, with 3 feet water on the shoalest part; from its north end Seal cove point bears SE. $\frac{1}{2}$ S. distant one mile, and west point of Hants harbor SSW. $\frac{3}{4}$ W. $1\frac{9}{10}$ miles. Knife rock, with 4 fathoms, and 6 to 11 fathoms round it, lies three-quarters of a mile westward of the Riff-raffs, with the west point of Hants harbor S. $\frac{1}{4}$ E. distant $1\frac{1}{4}$ miles; Hants harbor rock, with 2 feet on it, and from which

Seal cove point bears E. $\frac{5}{8}$ S. $2\frac{1}{2}$ miles, and Kings head SSW. $\frac{3}{8}$ W.; Block rock with $4\frac{1}{2}$ fathoms on it, lies half a mile ESE. $\frac{7}{8}$ E. of Hants harbor rock, with west point of Hants harbor ESE. $\frac{1}{8}$ E. nine-tenths of a mile.

The Tail of the bank has 6 fathoms water on it, and from it Salvage point bears E. $\frac{1}{4}$ N., and West point of Hants harbor S. $2\frac{1}{10}$ miles; thence in a SSW. direction for $1\frac{1}{10}$ miles is Hants harbor rock, and at $1\frac{6}{10}$ miles farther on in the same direction is Arthur rock; between the latter are several other rocks with 9 feet to 7 fathoms water on them, and all dangerous with a moderate sea. Arthur rock, with 6 feet on it, is 800 yards from the shore, with the Sugar loaf just open bearing S. $\frac{1}{8}$ W. and Hants harbor head E. $\frac{1}{8}$ S. a little more than half a mile distant.

Seal cove, on the west side of Salvage point, is about half a mile deep, but affords no shelter; its west point is steep and rocky on the north, but shelving to the eastward with shoal water off it. Between the cove and Hants harbor head the coast is steep and rocky, and over the latter is a hill 337 feet high. The coast thence to Sillee cove, 4 miles farther on, curves slightly outward, and being of the same height, it is difficult to distinguish one part of it from another. Kings head is the northern part of the curve.

Hants harbor, a mile east of Kings head, is 300 yards wide, 600 yards deep, and open to the NNE.; a heavy sea sets into it during and after gales, causing an undertow at the northeast side, but a few vessels manage to lie here in safety during winter. The west point is low and rocky, with shallow patches extending three-quarters of a mile in a NNE. direction. To enter the harbor, steer for Hants harbor church bearing S. by W. $\frac{3}{8}$ W. between the Tail of the bank and the Riff-raffs; the latter under ordinary circumstances will be seen breaking. When Seal rock, off Seal cove point, is in line with that point, steer about SSE. $\frac{3}{8}$ E. for the highest coast hill between the harbor and Seal cove, to avoid the shoal which runs out from the west point of entrance; when Seal rock is in line with Salvage point, bring the church to bear SW. by S. $\frac{3}{8}$ S. appearing one-third across the entrance, and enter the harbor in mid-channel. Anchor near the west shore in 4 fathoms water.

Light.—A *fixed white* dioptric light is exhibited from a light-house on the northeast head of Hants harbor. The light is elevated 65 feet above the level of the sea, and is shown from an octagonal wooden tower, resting on a square base; the buildings are painted *white*.

Position: Latitude, $48^{\circ} 1' 5''$ N.; longitude, $53^{\circ} 15' 5''$ W.

Sillee cove, $4\frac{3}{4}$ miles to the southwestward of Hants harbor, is $\frac{1}{4}$ of a mile deep and 400 yards wide at the entrance, narrowing gradually to the head. This is a fine boat harbor, though exposed to the NW., and a considerable settlement is situated round it, with a few hundred inhabitants and a church. Some rocks lie close off the east point.

Sugar loaf, a conspicuous cone 415 feet high, lies to southwestward of Sillee cove, and is bold-to; Turks cove, immediately southwest of Sugar loaf, is an open bight containing a few houses.

New Perlican harbor is separated from Turks cove by Jeans head, a bold bluff sloping from a hill 280 feet high. Garlep point, south of the entrance, lies SSW. $\frac{1}{2}$ W. 1,600 yards from Jeans head, and is steep-to. The east shore is straight and bold-to, but the south has two coves. Fitters cove, the outer, is half a mile deep open and exposed, with shoal water skirting the shores. The harbor proper is the easternmost, being 700 yards deep and 400 yards wide at the entrance, narrowing gradually to the head, from which shoal water extends 350 yards. This place is fit for fishing craft only, which can anchor in 3 fathoms near the north shore, to avoid a rock with 4 feet water a short distance off the first fishing stages in on the south shore. Larger vessels may find anchorage off the entrances of these coves in 8 fathoms, and with Bloody point, that divides the coves, bearing south. The settlement here contains about 500 inhabitants.

The coast from Garlep point to Hearts Content, 2 miles distant, is of low cliff, and may not be approached within 200 yards from the points. Bacon cove head, a conical wooded eminence 132 feet high, lies 1,200 yards north of the entrance to Hearts Content.

White rock, with 6 fathoms water, lies NW. $\frac{1}{4}$ N. $\frac{1}{2}$ mile from Norther point and N. by E. 800 yards from Lousey rock. Sugar loaf, well open of Garlep point, leads west, and Hearts Content church, open of Norther point, leads south of White rock.

Hearts Content harbor.—The entrance to this harbor is 10 miles SW. of Hants harbor, and is 800 yards wide between Norther point on the east, on which is a beacon painted red and white, and Souther point on the west. Thence it runs in $1\frac{1}{4}$ miles, and opens out in the middle to a mile wide, with soundings varying from 20 to 7 fathoms. The town lies along the eastern shore, behind it is a large lake, and Mizen hill which rises more than 600 feet high. The harbor is open to the northwest.

Beacons.—A beacon stands on a hill at the back of the town, and another on a point in the SW. part of the harbor, and another on the slope of a hill at the southern side of the head of the harbor.

A house at the south end of the town has been painted red and white in vertical stripes, and a large boulder on the beach whitewashed. Every spring, as soon as the harbor is clear of ice, 3 buoys, painted red and white, will be laid down; two giving the north and south line of the cables, and the third in mid-harbor to mark the east and west line of the cables.

Caution.—To avoid fouling the Atlantic telegraph cables, vessels should not anchor between the following marks: East beacon E. $\frac{3}{4}$ S.

open south of Fisherman hall, a conspicuous gabled building on the south side of the north bight; and striped house in line with the white-washed boulder E. $\frac{5}{8}$ N. The south cable is laid on this line. Small vessels may anchor to the southward of the southern buoy.

Tides.—It is high water in Hearts Content harbor, full and change, at 7h. 30m.; springs rise 4 feet, neaps $2\frac{1}{2}$ feet.

Seal cove head, $1\frac{1}{2}$ miles west of Hearts Content, is 286 feet high, with a remarkable landslip to seaward. It forms the west side of Seal cove, an open rocky bight.

The coast trends southwesterly from Seal cove head $1\frac{3}{4}$ miles to Shuffle board, a conspicuous hill over the coast 422 feet high, and is steep-to.

Hearts Desire, an open cove to the southwestward of Hearts Content, affords anchorage only with off-shore winds in 6 to 13 fathoms, as convenient. A reef extends 200 yards from a low point in the middle of the west side. Gannet point, south of the entrance, may be approached to a short distance.

Gannet rock, with 5 fathoms water, is small and lies WSW. $\frac{5}{8}$ W. $1\frac{1}{4}$ miles from Gannet point. Sugar loaf in line with Shuffle board NNE. $\frac{7}{8}$ E. leads east, the first house within the north head of Hearts Desire open of Gannet point leads west. Gannet point bearing E. $\frac{7}{8}$ N. leads north, and bearing ENE. $\frac{1}{4}$ E. leads south of this rock. Hanging hill, 650 feet high, lies $2\frac{1}{2}$ miles inland from Hearts Desire, and shows prominently from Trinity bay. The settlement round this cove contains about 100 inhabitants.

Hearts Delight, $2\frac{1}{2}$ miles southwest of Hearts Desire, is a snug harbor half a mile in diameter, affording excellent anchorage in 7 fathoms just within the entrance. A shoal spit, with $2\frac{1}{2}$ to 3 fathoms water on it, extends from the north shore near the head 425 yards, leaving a passage only 300 yards wide between the end of the spit and a low point on the south shore. The settlement here possesses a church and school-house, and contains about 350 inhabitants. Shoal water extends 300 yards from the west point of the entrance. The Lookout, a remarkable hill 590 feet high, lies SSE. $\frac{1}{2}$ E. $1\frac{1}{4}$ miles from this harbor.

South rock, with $3\frac{1}{2}$ fathoms water, lies W. by N. nearly half a mile from the south head of Hearts Delight, with Shuffle board in line with Gannet point bearing NNE. $\frac{1}{4}$ E., and Long point SSW. $\frac{1}{4}$ W. $1\frac{1}{16}$ miles.

The coast trends southwesterly from Hearts Delight $1\frac{3}{4}$ miles to Long point. Some rocks lie between them off Island cove, a shingle beach situated nearer Hearts Delight. From Long point it takes a bend south $1\frac{3}{4}$ miles to Shoal harbor an open bight, the south entrance

point of which is foul some distance from the shore, and around which are a few houses containing a few inhabitants.

Shoal rock with 9 feet water lies NW. by W. $\frac{3}{4}$ W. 600 yards from the south entrance point of Shoal harbor.

Witless bay, just south of Shoal harbor, is 2 miles wide at the entrance and nearly $1\frac{1}{2}$ miles deep, divided at the head into two portions by Middle point, a bold projection. Red rocks, a small cluster 110 feet high, lie in the entrance of the bay 1,200 yards from the north point.

Witless rock, with 4 feet water, lies SSE. $\frac{5}{8}$ E. three-quarters of a mile from Red rocks and NNW. $\frac{1}{4}$ W. 800 yards from Middle point. This rock is the highest part of a bank that, with less than 10 fathoms water, extends nearly half a mile east from it.

Anchorage may be had with shelter from off-shore winds as convenient, the water shoaling gradually from 17 fathoms in the entrance to 8 fathoms near the head; taking care to avoid the bank round Witless rock.

Black point, the southwest head of Witless bay, is the extreme of a promontory 50 feet high that separates the entrances of that bay and Greens harbor, and has rocks extending some distance from it.

Black rock, with 6 fathoms water, lies W. $\frac{3}{4}$ S. 1,400 yards from Black point. The first summit within Hope-all head, open either side of Hope-all island, leads east or west, and Middle point of Witless bay, well open of Black point, leads north of this rock.

Greens harbor extends SSE. $\frac{1}{2}$ E. $1\frac{1}{10}$ miles, is 1,200 yards wide, and free from danger, the water shoaling gradually from 9 fathoms in the entrance to 5 fathoms at the head, but is exposed to northwesterly winds. A large village surrounds the head, containing a church and about 300 inhabitants. The west point is the termination of a narrow promontory, 240 feet high, that divides the harbor from Hope-all bay, and is continued by shoal water 400 yards from the north extreme.

Hope-all island, 75 feet high, lies 700 yards west of the extreme of this point, and the passage between them should not be taken, but the island is bold to on the north and west sides.

Hope-all bay may be readily recognized by Hope-all head, a remarkable bluff 407 feet high that forms the west point of the entrance, and is the termination of a tongue of land 220 feet high that forms the west side of Hope-all bay and the east side of New harbor. This bay is $2\frac{1}{8}$ miles deep and nearly $1\frac{1}{2}$ miles wide at the entrance, narrowing to the head, which is five-eighths of a mile broad. After entering, the water deepens to 22 fathoms, and then shoals gradually to the head, where anchorage may be had in 9 fathoms, with shelter in all winds but those from WNW. to N. A few houses are built round the head.

New harbor is a little more than a mile deep, two-thirds of a mile wide at the entrance, and narrows gradually to the head, but is nearly filled with rocks. Fishing craft, however, find good shelter within these rocks, and a large village is built at the head, with a church and about 350 inhabitants.

Dildo arm, close south of New harbor, is the southern harbor in Trinity bay, the line of the outer points trending to the northward from the west point of the entrance.

Dildo islands, a group nearly a mile long, narrow, and 60 feet high, lie in the continuation of the promontory forming the west side of the arm, two-thirds of a mile distant, and the same distance west of the east point of the entrance, which is surmounted by a round hill, 150 feet high, that shelters Dildo cove, just within the arm, where the settlement is situated with more than 300 inhabitants. Rocks surround the islands for a short distance, and not more than 7 fathoms can be carried in mid-channel over the bar joining the islands to the west point of the arm. The arm is about 2 miles long and 1 mile wide, with deep water for the most part, and divided at the head into two coves by a point, from which shoal water extends 300 yards. The west shore should not be approached within 300 yards. Anchorage may be had off Dildo cove in 8 fathoms, with shelter from easterly winds, or off the southern of the two coves at the head in 12 fathoms, with shelter from all winds but those from northward. The northern of the two coves is shoal.

Tides.—It is high water full and change in Dildo arm at 6h. 40m.; springs rise $4\frac{1}{2}$ feet.

Spread eagle islands lie close north of the west point of this arm and low rocks nearly connect them.

Spread eagle bay, west of Dildo arm, is nearly 2 miles wide at the entrance, and is divided into two bights by a point, from which a ledge with 5 fathoms water on the outer edge extends nearly a quarter of a mile. Anchorage with shelter from off-shore winds may be had in the east cove in 12 fathoms, sand, and for small vessels in the west cove in 6 fathoms.

McLeod point divides Spread eagle bay from Chapple arm and is bold beyond a short distance. Chapple head, north of that arm lies NW. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles nearly from McLeod point, and is the sharp termination of a flat topped bluff 350 feet high.

Chapple arm extends S. by W. a little more than 3 miles, has no danger beyond a short distance from the shore, and affords no anchorage for large vessels. A group of narrow islands and rocks extends 800 yards from a little promontory on the east shore, $1\frac{1}{2}$ miles within McLeod point, and shelters a small boat harbor. An islet with rocks off it east and west lies nearly a mile beyond the group, and near the head

is Mooring island, small and steep-to. Small vessels may find anchorage off the southern cove at the head in 12 to $3\frac{1}{2}$ fathoms, according to their length, but the western cove is shoal.

Long cove, north of Chapple head, is open and free from danger.

Cottier bay is separated from Long cove by Cottier point, the extreme of a promontory 250 feet high, sloping from a hill 658 feet high, south of the head of the bay. This bay is open and exposed, but will afford anchorage with shelter from off-shore winds in 10 fathoms, sand, half a mile from the head. Some rocks lie off the only indentation on the north shore, which is situated just within the entrance.

Conception bay.—The coast from Split point to Broad cove head, a distance of $18\frac{1}{2}$ miles, is clear, with the exception of the following off-lying dangers: Wall rock, with 5 fathoms water over it, lies WNW. $\frac{5}{8}$ W. distant $1\frac{1}{10}$ miles from the southwest point of Baccalieu island. Job rock, with 5 fathoms on it, lies E. $\frac{5}{8}$ N. distant $1\frac{1}{2}$ miles from Gull island. Puddy rock, with 5 fathoms on it, lies N. by E. $\frac{7}{8}$ E. distant half a mile from Western bay head.

Salmon cove head.—At 14 miles W. $\frac{7}{8}$ S. of cape St. Francis is Salmon cove head, on the west side of Conception bay. From this head the land trends SW. $\frac{7}{8}$ S. 3 miles to Crockers point, on the north side of entrance to Carbonear bay, the coast between being steep, in places cliffy, and the hill rising 490 feet high. There are several small fishing villages; the principal are Clements, Freshwater, and Crockers, at the entrances of three ravines.

Several small islets and rocks lie off this part of the coast. Folly rocks form a small ridge above water, about half a mile south of Salmon cove head, and 100 yards from the shore. Mad rock is small, above water, and lies 300 yards northeastward of the Harton rocks off Clements cove. A small chain of rocks or islets forms the south side of Clements cove, and terminates in a rock awash at low water; the rocks are named Harton rocks, and separate Clements cove from Freshwater cove. Bradley rack is small and above water; it lies nearly midway between the extremity of Harton rocks and Maiden island, a little without the line of direction.

Maiden island is 49 feet high, but being small, and the same appearance as the cliffs of the coast, it is not easily distinguished. Half way between it and Crockers point are some rocks above water, 135 yards from the shore.

Crockers cove is immediately north of Crockers point, on the north side of entrance to Carbonear bay; rocks and shallow water extend 200 yards eastward of it.

Carbonear island is 1,200 yards in length NE. by E. and SW. by W. 400 yards in breadth, 169 feet high, and slopes to the westward; its coast is mostly cliff.

Light.—From a light-house on the summit of Carbonear island a *fixed white* light is exhibited at an elevation of 195 feet above high water, visible in clear weather from a distance of 16 miles.

Mosquito cove, south of Carbonear bay, is formed by Mosquito point and Old Sow point; it is about 800 yards wide at the entrance and 1,600 yards deep, the water shoals gradually to its head, but it affords no shelter or safe anchorage.

Carbonear bay, 26 miles about SW. $\frac{1}{2}$ S. of Baccalien island, is $2\frac{1}{2}$ miles deep, in a W. direction, and three-quarters of a mile wide, with bold shores, except at the head, where it shoals gradually to a shingle beach. The entrance is easily recognized by the island off it, and by Saddle hill, 503 feet high, and the most remarkable land seen from seaward, immediately south of it. The anchorage in Carbonear bay is off the north shore, in from 7 to 10 fathoms, sand; although open to the sea, which rolls in heavily with easterly gales, many vessels of about 100 tons winter in safety at the wharves of the town. The center and south side of the bay is exposed to the sea and should be avoided.

From the northward there are no dangers in entering Carbonear bay in ordinary weather, except those off the coast between Salmon cove head and Crockers point, which are all visible, and avoided by keeping Broad cove head open of Folly rocks. During heavy seas from the eastward, Kane and Saucy Joe rocks break occasionally. Kane rock, with 9 fathoms water on it, lies in the entrance of the bay, with Harbor Grace islands light just open of the northeast point of Carbonear island, SSE., and Maiden island, west 1,400 yards. Saucy Joe rock, with 11 fathoms on it, lies with the Eastern rock of Harbor Grace islands just over the break in the northeast end of Carbonear island bearing SSE. $\frac{1}{2}$ E., distant 600 yards from Carbonear island.

Between Carbonear island and Mosquito point the distance is half a mile, but the channel is narrowed to 200 yards by sunken rocks extending from the island and point. To proceed through in 4 fathoms water, keep the Haypuk on Feather point just shut in with the cliff of Old Sow point, S. by E. $\frac{1}{4}$ E.

Old Sow point.—The extremity of this point, on the north side of entrance to Harbor Grace, is shelving rock, at the base of small cliffs; the latter increase in height to 70 feet at a short distance westward, and maintain the same elevation for $1\frac{1}{2}$ miles towards Harbor Grace, the hills over them being 285 feet high. From the termination of the cliffs to Harbor Grace light, a distance of $1\frac{1}{2}$ miles, the coast is low, with rocks extending off about 200 yards. At about 80 yards off Old Sow point is a small rock above water called Old Sow rock.

At about three-quarters of a mile southwestward of Old Sow point, and 60 yards from the shore, is a rock called Long Harry; its diameter is small, but it is 72 feet high.

Feather point, on the south side of entrance to Harbor Grace, is the termination of a ridge of hills over the south side of the harbor; the extremity of the point is a mass of slate, just disconnected by a rent from the main body of the point, and called the Haypuk.

Harbor Grace islands, off Feather point, are a cluster of small islets and rocks, covering a space of about three quarters of a mile, in the direction of the point, by a third of a mile in breadth. The principal islet is 105 feet high, and on the western islet is a summer fishing village. Between 200 yards and 400 yards to the northeast of Harbor Grace islands are other islets or rocks, the outer of which is called Eastern rock; and beyond them is rocky ground, with 4 fathoms water on it, named White rock, on which the sea breaks with great violence.

At 400 yards west of the south end of Harbor Grace islands are Ragged rocks above water, and between them and the shallow ground off Feather point is a channel 400 yards wide, with 3 and 4 fathoms water, but a stranger should not attempt this passage, as there is no good leading mark for it.

Light.—On the northeast island is a light-house, which exhibits at 151 feet above high water a *revolving* light, showing two *white flashes*, followed by one *red flash*, the interval between flashes being *thirty seconds*, that should be visible in clear weather at a distance of 18 miles.

Salvage rock, a third of a mile S. $\frac{3}{4}$ E. of Long Harry rock, on the north shore of the entrance to Harbor Grace, is another small rock, 53 feet high, with deep water round it, but in a heavy sea it breaks 70 yards inside it.

Harbor Grace.—From a line between Old Sow and Feather points Harbor Grace runs SW. by W. $\frac{1}{2}$ W. $4\frac{1}{4}$ miles, with a breadth of $1\frac{1}{2}$ miles at the entrance, decreasing to $\frac{1}{3}$ of a mile at its head, the hills on either side reaching 500 feet above the sea. At 1,200 yards eastward of the harbor light a bar runs across the harbor; the greatest depth on it is 24 feet and the least depth 9 feet, the latter over a boulder bank forming the south side of the main channel; between the bank and south shore the depth is 13 feet. In heavy weather the sea breaks on the shoal part of the bar, but seldom or ever in the 24 foot channel. The depth of 30 fathoms at the entrance of the harbor decreases to 10 fathoms at 400 yards from the bar; within the bar there are from 9 to 4 fathoms to the head of the harbor.

Lights.—At the outer end of point of Beach, which is a shingle point, is shown a *fixed white* light from an elevation of 40 feet, which should be visible in clear weather from a distance of 6 miles. It is obscured by Salvage rocks on the bearing SW. $\frac{3}{4}$ W.

Buoys.—A *white* buoy lies in 22 feet water, with the Roman Catholic church dome bearing WNW. $\frac{1}{4}$ W., Long Harry NE. $\frac{3}{4}$ N., and point of Beach light-house SW. by W. $\frac{3}{4}$ W., distant about 1,025 yards.

A *red* buoy lies in 11 $\frac{1}{2}$ feet, with the Episcopal church bearing W. $\frac{1}{4}$ N., the Roman Catholic church-dome N. $\frac{3}{4}$ W., and point of Beach light-house SW. by W. $\frac{1}{4}$ W., distant 400 yards.

As these buoys are only moored with small anchors their positions cannot be relied upon.

During winter the buoys are removed and spars substituted for them.

Directions.—In entering Harbor Grace, give the Eastern rock off Harbor Grace islands a berth of 600 yards by keeping the dome of the church at the east of the town open north of Salvage rock, and steer in mid-channel, passing either north or south of the above rock. To cross the bar in the deepest water, bring the light-house on point of Beach to bear SW. by W. $\frac{1}{4}$ W. and in line with Ship head, a hill 98 feet high on the same shore a mile beyond it. When clearing the bar passing to westward of the white buoy, and the dome of the church at the east end of the town is in line with Green hill (443 feet high), do not shut in the point east of Long Harry with that rock, but edge southward, leaving the red buoy to starboard, to avoid the shore bank east of point of Beach; this point is steep to on the south.

At night run in with the light at point of Beach SW. $\frac{3}{4}$ W. until Harbor Grace islands light bears about E. by S., then steer southward—to avoid Salvage rock—until the point of Beach light bears SW. by W. $\frac{1}{4}$ W., then proceed as before.

Having passed the light, anchor where convenient in from 6 to 9 fathoms, mud. The best anchorage is on the north shore, as at times the sea is rough on the south. The harbor is safe, although the most violent winds are from the westward, and blow occasionally with much force.

In working in, a vessel may stand to either shore to a prudent distance until up to the bar. Brennan hill, 392 feet high, and southward of Green hill, open eastward of the church at the east end of the town, leads northward of the bar; and Green hill, open westward of the same church, leads southwestward of the bar. In crossing the bar, the point east of Long Harry should not be shut in with that rock, and short tacks should be made between this line and the line of the leading marks until Green hill is seen westward of the church, when the board to the southward may be prolonged. There is no tidal stream in Harbor Grace to assist a vessel either in or out.

Tides.—It is high water at Harbor Grace, full and change, at 7h. 25m.; springs rise 4 $\frac{1}{4}$ feet, neaps 3 feet.

Bryants cove, on the south side of Feather point, is 600 yards wide and $\frac{1}{2}$ mile deep, with several patches of rocks near the center that cover

at half tide. The entrance is by the south shore, or by having a conspicuous hill up the valley open of the north shore of the inner part of the bay; but the cove is open to seaward and affords no shelter. In the above valley, formed between the ridge of hills on the south side of Harbor Grace and those on the north shore of Spaniards bay, are several lakes and bogs.

Spaniards bay.—Spare point, on the south side of Bryants cove, has several detached rocks above water near it, with a depth of 10 fathoms 600 yards off; thence the coast, which is clifty, and the hills over it 500 feet high, trends S.W. by S. 2 miles to Island cove, a rocky bight fronted by an islet. Spaniards bay is a mile wide, and runs $3\frac{1}{2}$ miles to WSW.; its north shore is clear of danger. Green head, at the head of the bay, is 112 feet high; the only safe anchorage is on the north shore north of this point in from 4 to 8 fathoms water, keeping Green head westward of S. by W. to avoid a shoal patch with 9 feet on it, lying with the north church NW. $\frac{3}{4}$ W., south church SW. $\frac{1}{2}$ W., and Green head SE. by E. $\frac{3}{4}$ E. In the middle of the bay there are from 20 to 40 fathoms water. The southern shore is exposed to a heavy sea, which sets in with easterly gales, and the eastern part has several rocks extending 200 yards from it; farther in the water is shoal the same distance off, and at the head of the bay to about 400 yards.

Mad point is the eastern termination of a peninsula 4 miles in length, 800 yards in breadth, and separating Spaniards bay from Bay Roberts. Mad rocks are above water, and extend eastward 400 yards from the north extreme of the point; and broken ground with less than 10 fathoms over it 1,200 yards farther, over which during an easterly swell the sea rolls up to the dry rocks, and breaks over them with such violence as to give origin to the name Mad rocks. There are 20 fathoms $1\frac{3}{4}$ miles ENE. of the point; in bad weather it should not be approached when bearing SW. by W. nearer than a mile; with the exception of two small rocks above water, about 90 yards off the south side, Mad point is steep-to. Jugglers cove is a small boat harbor formed by some rocks 1,200 yards SW. of Mad point.

Bay Roberts is formed between the peninsula just mentioned and another peninsula on the south. It is about $3\frac{1}{2}$ miles in length and nearly a mile in breadth. Fergus islet, 134 feet high, 400 yards in length NE. and SW. and 200 yards in breadth, with a round summit, lies 400 yards from the north shore and about a mile from Mad point. There are 15 fathoms water between the islet and the shore, but NW. 200 yards from its west end is a rock with less than 6 feet on it, and rocks extend 200 yards off its northeast end.

Coldeast point is a projection dividing the head of Bay Roberts into two parts. It is surrounded by rocks at the distance of 200 yards which cover and uncover. At 200 yards E. by S. of the point is a patch

of rocks with 12 feet water and 5 fathoms between it and the point. There are a church and a few houses scattered over this projection.

To the north of Coldeast point is Roberts harbor, a safe anchorage and easy of access. It runs in a mile with an average breadth of 400 yards, the water shoaling gradually from 10 fathoms at the entrance, muddy bottom and good holding ground. On the north shore of the harbor is the town, with two churches and fishing establishments. Vessels drawing 12 feet water can lie at the wharves at any time of tide.

Roberts lookout, the north head of Roberts harbor, is a steep cliff, and at its eastern extremity a ridge of dry rocks extends eastward 140 yards, forming Mercers cove, where there are a few houses and fishing boats. Under the west church, and 70 yards from the shore, there are two rocks; these, with the rocks and foul ground off Coldeast point, are the only dangers. A shingle spit, with a lagoon in it, projects from the north side of Coldeast point.

The south side of Coldeast point is broken and rocky, the rocks extending 100 yards from the shore. An islet 10 feet high lies off the shingle beach at the head of the bay. A rock awash at low water lies 300 yards from the south shore, with the extreme of Coldeast point bearing N. $\frac{3}{4}$ E. nearly, and Bareneed church E. $\frac{1}{2}$ N. From this rock seaward the south shore of Bay Roberts is foul 200 yards off. There is no safe anchorage on this side of the bay.

Green point is the termination of the narrow peninsula 4 miles in length separating Bay Roberts on the north from Bay de Grave on the south. Close off it are some small rugged rocks above water, and broken ground extends 400 yards from the point.

Lights.—The following lights are exhibited from a light-house on Green point:

The principal light is *fixed white*, dioptric, of the 6th order, elevated 56 feet above the sea, and should be visible, in clear weather, about 8 miles.

Immediately beneath the principal light is a projecting lantern from which *three* lights are exhibited. The *two* outer lights show *white*, and the center light, in line with Southern rocks, bearing S. by W. $\frac{3}{4}$ W., shows *red*.

The light-house, constructed of iron and circular in shape, is painted alternately *red* and *white* in horizontal bands (*two red and three white*). A store-house in rear of the light-house is painted white.

Position: Latitude, $47^{\circ} 36' 40''$ N.; longitude, $53^{\circ} 10' 15''$ W.

Bay de Grave is $5\frac{1}{2}$ miles in length SW. by W., with an average breadth of three-quarters of a mile. In the middle of the entrance the water is 70 fathoms deep, shoaling to 30 fathoms at a mile from the head of the bay. Hibbs hole is a rocky cove south of Green point, but affords no shelter. Blow-me-down head, a mile SSW. of Green point, projects

200 yards beyond the line of coast, and half a mile beyond it is Ship cove, a little sheltered by the head, and in summer small vessels may anchor off it in 10 fathoms water, with Port de Grave church, which is midway between Ship cove and Port de Grave, NW. by W. $\frac{3}{4}$ W.

Port de Grave, having a depth of 6 to 9 feet, is three-quarters of a mile westward of Blow-me-down head, and fronted by some low islets or rocks; shoal water extends 200 yards eastward from the southern rocks. The coast westward of Port de Grave is cliffy as far as Bareneed, $2\frac{1}{4}$ miles from Blow-me-down head. Off the village is a summer anchorage for small vessels in 10 fathoms water, 140 yards from the shore, with the church bearing between NW. by N. and N. by W.

From the village of Bareneed round the head of the bay to Cupids cove on the south there are no dangers nor sheltered anchorages; the water deepens gradually, and at three-quarters of a mile from the head of the bay there are 10 fathoms. Two streams here empty, one at the north, the other at the south corner of the beach; they are named the North gut and South gut; both can be entered by boats at high water, and are navigable a considerable distance.

Cupids cove, on the south side of a remarkable bluff, 330 feet high, named Spectacle head, runs in about three-quarters of a mile, and is 400 yards wide. There is anchorage here for small vessels in from 3 to 8 fathoms, mud and sand; though open to seaward, but little sea sets in. A shoal bar crosses the harbor from the east extreme of a shingle spit on the south shore.

Burnt point is the south point of entrance to Bay de Grave; it is 181 feet high, with small coves north and south of it. Sopers rock, with less than 2 feet water on it, lies N. $\frac{1}{2}$ E. 200 yards from the north extreme of the point. On the south side of the point at about the same distance are other rocks with 6 feet on them and some uncovered. A vessel should not approach nearer than half a mile.

The coast from Burnt point trends S. by E. $1\frac{1}{2}$ miles to the north point of entrance to Brigus bay; it is steep, and the hills rise immediately over it from 280 to more than 400 feet; the most remarkable of these hills is Brigus lookout, a round summit 408 feet high. The south point of entrance to the bay is rugged, terminating in some slate rocks; the land about $1\frac{1}{2}$ miles within it is much broken, rising to a double peak, 542 feet above the sea, called the Twins.

Brigus bay runs in a mile to the westward with an average breadth of 800 yards; there are no dangers, but at about 50 yards from the shore there are several boulders, which have rolled down from the hills. The sealing vessels belonging to Brigus moor head and stern in the northwest corner of the bay, and under Admirals island, in the south-west corner; there is no anchorage for a stranger.

The town of Brigus is a small but thriving place; it is situated round

the shores of a lake in a valley between steep barren hills. Its importance is accounted for from the fact of the sea setting into the bay, breaking up the ice, and releasing the sealing vessels early in the spring.

Colliers point, S. by E. $\frac{1}{4}$ E. $1\frac{1}{2}$ miles from South head of Brigus, is the extreme of a peninsula 4 miles long and a mile wide separating Colliers and Castries bays. Campbell hill rises 434 feet high near the north extreme, and is continued to the point by other summits 320 feet high. Colliers point may be approached to 200 yards distant.

Colliers bay extends in a straight line SW. by S. $3\frac{3}{4}$ miles from Colliers point, and is entered between that point and Seal head, a steep bluff at the extreme of the slope from the Twins. Turks head on the north shore, $1\frac{1}{2}$ miles to the southwestward of Seal head, is a steep bluff 337 feet high, forming the south side of Turks gut, a narrow inlet bordered by a few houses. Harbor rock, awash at low water, lies SSE. $\frac{3}{4}$ E. 750 yards, and Bull rock, with 6 fathoms water, NE. $\frac{3}{4}$ E. a little more than $\frac{1}{2}$ mile from the extreme of Turks head. Blue hills, well shut in with Dock head, leads south of these rocks

The remainder of the north shore is straight, and may be approached to 100 yards, till the shallow water is met with at 400 yards from the head. The south shore is slightly indented, James cove, the first in on that shore, being sheltered by a small projection 82 feet high. The next cove to the southwestward, at the head of which is a shingle beach bordered by houses, is filled with bowlders under water to the line of the points. Curtain rock, with 10 fathoms, lies 300 yards off the south coast, under the first hill within the entrance, and a shoal with 7 fathoms water lies nearly in midchannel, $1\frac{1}{4}$ miles from Turks head. Dock head, a small peninsula 134 feet high, situated $2\frac{1}{2}$ miles from the entrance, forms the west side of a shallow cove, is bold to on the north side, and shelters the Dock, a small cove to the westward of the head. Anchorage may be had west of Dock head in 10 to 4 fathoms, gravel, exposed to north-easterly winds only.

The coast from Colliers point is skirted by rocks, and trends southward 2 miles to Bacon head, a steep bluff surmounted by a hill 326 feet above high water, that makes the south side of Bacon cove, an open bight containing several rocks. A small rock lies close off Bacon head, and, with the coast, may be approached to within 200 yards.

Castries bay extends SW. $\frac{1}{2}$ S. $2\frac{1}{4}$ miles, with a breadth of $\frac{7}{10}$ of a mile from Bacon head to a projection ending in Cat rock, that divides the head into two coves. The depth diminishes from 50 fathoms at the entrance, to 25 fathoms at a quarter of a mile from Cat rock, with no danger at a prudent distance from the shore.

Cat cove, the northern of the two, is 1,600 yards deep and 600 yards wide; it is again subdivided at 800 yards within by Paw point, a narrow

promontory forming two coves about 300 yards wide. Mouse rock, with 2 feet water, lies in the entrance to Cat cove, about 200 yards from the north shore. Witch hazel peak, shut in with Paw point, leads south of Mouse rock. A low rock lies close off the south shore.

Anchorage may be had in 8 fathoms, sand, off the church, for small vessels, but exposed to NE. winds.

Salmon cove, the southern bight of Castries bay, is $1\frac{1}{10}$ miles deep and 1,200 yards wide at the entrance, terminating in an inlet 300 yards wide, entered 1,100 yards from the head. This inlet is filled with rocks and is available only for boats. The outer portion of Salmon cove is clear of danger at 200 yards from the shore. The north side slopes from Red hill, a steep bluff 280 feet high, over Pikes cove, the easternmost indentation on that shore, and the south side slopes steeply from a hill 458 feet high.

Blue hills form a conspicuous range, surmounted by a double top 839 feet high, and are situated 2 miles from the head of Castries bay. Witch hazel peak, 598 feet high, lies three quarters of a mile to the northward of Blue hills, and is the first conspicuous peak in that direction.

Castries point is the extreme of a peninsula dividing Castries bay from Harbor main. The north shore of this peninsula from Salmon cove is skirted by shoal water extending off 200 yards, and the point should not be approached within that distance. The south shore is bold to a prudent distance off.

Harbor main extends S. by W. 2 miles from Castries point, and is entered between that point and another lying SSE. $\frac{1}{4}$ E. a mile nearly from it; off the latter is a small islet. This harbor is clear of danger, except a rock with 12 feet of water lying NE. $\frac{1}{4}$ N., 350 yards from the point SSE. of the church, the depth ranging from 35 fathoms at the entrance to 20 fathoms at half a mile from the head. A considerable settlement, with about 750 inhabitants, is situated on the north shore, with a conspicuous church. Vessels can find anchorage in 12 fathoms with the church bearing NNW. $\frac{3}{4}$ W., having swinging room of 250 yards, but exposed to NE. winds.

Holy Rood, situated south of Harbor Main, is 4 miles long and three-quarters of a mile broad. The west shore is foul for a mile from the entrance, and should not be approached within 200 yards. A shoal with 12 feet water lies off the mouth of Chapel cove, the first indentation on the west shore, beyond which there is no danger; but the water is deep till the two coves at the head are entered.

Anchorage may be had in the northern cove in 10 fathoms, sand, or in the southern cove with the church bearing WNW. $\frac{3}{4}$ W. in 13 fath-

oms, both exposed to NE. winds. A settlement, with about 700 inhabitants, lines the north side of the southern cove.

Tides.—It is high water, full and change, in Holy Rood anchorage at 7h. 28m.; springs rise $4\frac{1}{2}$ feet, neaps $3\frac{1}{2}$ feet.

The coast from this bay trends with a deep bend NNE. $\frac{3}{4}$ E. 25 miles to Cape St. Francis. The western part consists of a series of beaches backed by salt water ponds, and skirted by shoal water nearly a quarter of a mile from the shore. Several villages with churches are built on the shore, and this portion of the bay is one of the most picturesque in Newfoundland. Butter pot, a conspicuous hill 999 feet high, lies eastward of Holy Rood bay, and the whole coast is backed by steep wooded hills 500 to 800 feet high.

Portugal cove, 15 miles from Holy Rood, is the deepest indentation on the shore, being 800 yards deep, with a rock in the middle, and depths of water decreasing from 20 fathoms in the entrance to 5 fathoms near the head. Princes lookout, a conspicuous hill 543 feet high, surmounted by a flagstaff, lies southeastward of the head of this cove.

The character of the coast changes north of this cove from gentle partially cultivated slopes to steep barren cliffs, attaining the height of 880 feet in Ore head, situated about mid-way between Portugal cove and Cape St. Francis.

Bell island, the largest of three lying off the south shore of Conception bay, is so called from a remarkable conical rock 220 feet high, situated near the west extreme and named the Bell, from the supposed resemblance. This island lies nearly parallel to the coast at the distance of 2 miles from Portugal cove, is $5\frac{1}{2}$ miles long, nearly $1\frac{3}{4}$ miles broad, and surmounted by a nearly flat ridge 495 feet above high water. The Clapper, a prominent rock, lies at the southwest point, and a considerable village with a church is situated just east of it. Shoal water extends nearly a quarter of a mile from the east extreme, within which distance the shores should not be approached.

Bell rock, with 15 feet water, lies SW. $\frac{1}{4}$ S. 1 mile nearly from the Clapper, and from the rock a ledge with 4 fathoms water extends half a mile to the northwestward.

Little Bell island, SE. by S. 2 miles from the Clapper, is narrow, 1,200 yards long, 92 feet high, and is skirted by foul ground that extends about 400 yards from the shore.

Kelly island, 183 feet high, lies SW. by W. $1\frac{1}{2}$ miles from Little Bell island, and $1\frac{3}{4}$ miles nearly from the south shore of the bay. A shingle spit extends from the southeast shore, and the island should not be approached within a quarter of a mile.

Cape St. Francis is formed by two low bills, off the westernmost of which are two small islets.

Light.—On the eastern bill of cape St. Francis a light-house has been erected, from which at an elevation of 123 feet above the level of the sea is exhibited a *fixed red* light that should be visible 12 miles in clear weather. The buildings are of wood, flat roofed, and painted white.

Fog signal.—A powerful siren trumpet has been established in a house attached to the light-house, and will be sounded every minute during thick weather, fogs, and snow-storms as follows:

Duration of sound, *five seconds*; of silence, *seven seconds*; of sound, *five seconds*; of silence, *forty-three seconds*.

The Brandies are three rocks with 4 to 12 feet water on them, the extreme of rocky ground extending from some islets and rocks south-eastward of the cape, from which the outer lies E. $\frac{3}{4}$ N. 1,600 yards. Torbay point open of Black head leads south of the Brandies.

The coast from cape St. Francis to St. John's harbor is of nearly steep cliff, with two principal indentations. Pouch cove, the northern, is nearly 3 miles from cape St. Francis. Black head, the southeastern point of this cove, is about 400 feet high. A shoal, with 6 fathoms water, lies a quarter of a mile off the north point of Pouch cove, and Cliff rock, with 8 fathoms water, lies N. by W. $\frac{1}{2}$ W. 1 mile from Black head. Flat rock cove is a small indentation $3\frac{1}{2}$ miles south of Black head, the south point of which Flat rock point, is long and narrow, separating the cove from Torbay.

Torbay is 3 miles deep and the same in breadth, and is quite exposed. Anchorage may be had with shelter from westerly winds off the western cove in 10 fathoms; elsewhere the water is too deep. In thick weather, or when the background hills are hidden, Torbay point, appears to slope from two round hills with a slight saddle between.

Tantam rocks, with 3 fathoms water, are two heads, the outermost of which lies N. $\frac{1}{2}$ E. three-quarters of a mile from Torbay point. A shoal, with 5 fathoms water, lies a third of a mile beyond in the same direction.

Red head, $1\frac{1}{4}$ miles to the southward of Torbay point, and **Sugar loaf**, $1\frac{1}{4}$ miles from Red head, are two conspicuous hills, 700 feet high, that fall in steep reddish cliffs to the water line, appear conical from the line of the coast, and are steep-to. A cave extends through the base of the Sugar loaf. Red head rock, with 5 fathoms water, lies SE. $\frac{3}{4}$ S. nearly a mile from Torbay point and 1,200 yards from Red head.

Small point, $1\frac{1}{4}$ miles from Sugar loaf and $2\frac{1}{2}$ miles to the northward of St. John's harbor, is a smaller cone and bold-to.

St. John's, the capital of Newfoundland, and the seat of government, has a population of about 24,000, and employs upwards of 11,300

tons of shipping in the fisheries. The city covers the steep hilly ground on the north side of the harbor, and continues along the banks of the river and the south shore of the harbor; it has several handsome public buildings, of which the most conspicuous is the Roman Catholic cathedral.

The harbor, although small, is convenient and secure, having deep water and excellent holding ground; it is generally smooth, for, though near the open sea, the entrance is narrow and nearly at right angles to the harbor, which is shut in from the sea by high land on the south side. It is not often frozen over in winter, and is accessible at all seasons, except when the prevalence of easterly winds in early spring drives heavy field-ice upon the coast.

The largest vessels can be securely moored at the wharves which line both sides of the harbor. On the wharves there are numerous oil vats from which the stench is very unpleasant in the summer months, and stages for drying fish are placed in every available spot.

Supplies.—The city is abundantly supplied with excellent water from a lake 4 miles distant, and pipes are placed on the wharves for the supply of shipping. Supplies of every kind may be readily obtained, and there is a floating-dock, capable of taking up vessels of 300 tons; this, however, cannot always be relied on.

Ice may at any time between January and June block the harbor's mouth, and as late as August icebergs sometimes drift into the Narrows, so as to render the passage of the entrance difficult.

Fogs are less frequent at St. John's than farther south, owing to the interposition of land to the southwest, by which it is dissipated. When cape Spear or St. John's harbor is obscured by fog, a gun is fired every hour during daylight from fort Amherst, on the south side of the entrance to the harbor.

Lights.—**Cape Spear**, SE. $3\frac{1}{4}$ miles from the entrance to St. John's harbor, is 200 feet high, rises steeply from the sea, and is distinguished by a light-house painted red and white horizontally. The light-house exhibits at 264 feet above the sea a *revolving* white light, attaining its greatest brilliancy every *minute*, and visible in clear weather 22 miles.

Fog-signal.—A fog-signal has been established about 600 yards NNE. from cape Spear light-house; in thick or foggy weather a trumpet will be sounded during *seven seconds* of every *minute*.

Fort Amherst.—From a square white tower in fort Amherst a *fixed* white light is shown, at an elevation of 114 feet above the sea, that should be visible from seaward between the bearings of SW. $\frac{3}{4}$ S. and N. $\frac{3}{4}$ W. for a distance of 16 miles in clear weather.

Church and custom-house.—Two *fixed red* lights are exhibited; one from the top of a pole painted white, 225 feet above the sea, near

the corner of a church; and the other from the top of the custom-house, a red brick building 50 feet above the sea, whose base is painted white. These lights are 400 yards distant from each other, and when in line bearing W. $\frac{1}{2}$ N. lead through the Narrows and south of Merlin rock, at the inner part of the entrance.

Beacon.—A cairn has been erected by the fishermen on Black head, one mile W. by N. of cape Spear; this will be found of much use when making the coast in foggy weather.

Dangers.—**Old Harry**, with 3 fathoms water on it, lies NE. $\frac{1}{4}$ N. half a mile from cape Spear, and SE. $\frac{3}{4}$ E. $3\frac{1}{2}$ miles from Fort Amherst.

Vestal rock, having 12 feet water on it, lies about E. $\frac{3}{4}$ N. from fort Amherst, and 100 yards from the shore. To pass clear of it, keep the Roman Catholic cathedral open north of fort Amherst, or Frederick battery point open of South head. Pancake rock, on the south shore, and about a third of a mile within South head, is awash at high water, and from it a spur, with 12 feet water, extends about 40 yards to the north-eastward.

Prosser rock, with 5 feet water, lies N. 50 yards from the fishing stage at Caheel point, and is cleared by keeping South head open of Frederick battery point.

Merlin rock, with 27 feet water on it, lies WSW. $\frac{3}{4}$ W. about 150 yards from Chain rock. The two *red* lights in line, or the top of the Custom-house in line with the north side of the Congregational church, leads southward of this rock.

Wash balls rocks are awash, and skirt the shore about 150 yards north of North head; shoal water extends about 100 yards SE. of them.

White or Carey rock, with 6 feet water on it, lies 40 yards from the cliff under Signal hill, and 400 yards WNW. $\frac{3}{4}$ W. of North head.

Chain rock is nearly covered at high tides, and lies 40 yards S. $\frac{3}{4}$ E. of the Battery. Roby rock, with 3 fathoms water, lies 40 yards SW. $\frac{3}{4}$ S. from Chain rock.

To clear Seal rock, which covers at three-quarters flood, and lies NW. $\frac{3}{4}$ W. of Chain rock, keep South head open of Chain rock.

Pilots and steam-tugs are generally met with off cape Spear. A vessel encountering foul or baffling winds will find temporary anchorage in 15 fathoms, rock, just within the heads, where she may be taken in tow by a steam-tug.

Directions.—St. John's harbor is well distinguished by fort Amherst on the south entrance point, and by the flagstaff, block-house, and barracks on Signal hill, on the north side of entrance. But the entrance itself is so narrow that in foggy or hazy weather, when the hills are in-

distinct, the stranger must be careful not to be misled by the opening into Quiddy-viddy harbor, which is about a mile to the northward. At a distance the coast appears hilly, bleak, and desolate; the land rises abruptly from the sea to the height of 500 and 740 feet. The narrow entrance to St. John's harbor being only 330 yards wide, with high land on either side, does not appear from a distance, but after recognizing cape Spear, as the land is approached, by steering so as to pass about 2 miles north of that cape, the block-house on Signal hill will soon be visible.

Then steer for Signal hill, and bring the north side of the Congregational church, in front of the Roman Catholic cathedral, in line with the top of the custom-house, or the two leading *red* lights in line bearing W. $\frac{1}{2}$ N., and proceed on this course through the Narrows into the harbor to any convenient anchorage. The Roman Catholic cathedral should always be open north of fort Amherst to avoid Vestal rock. If the leading marks cannot be seen in the day, steer so as to keep Chain rock a little on the starboard bow, until abreast of Pancake rock, when steer for the custom-house W. $\frac{1}{2}$ N., bearing in mind that South head should be kept open of Frederick battery point to clear Prosser rock.

Small vessels, with boats to tow, often beat in, but the unsteadiness of the wind renders it tedious and difficult.

Signals.—The International Commercial Code of Signals is in use at Signal hill block-house.

Tides.—It is high water in St. John's harbor, full and change, at 7h. 30m.; springs rise 6 feet, neaps 4 feet. There is very little tidal stream in the Narrows.

Between fort Amherst and cape Spear are three small bays, exposed to the sea, but affording shelter for fishing boats during the prevalence of southwest winds.

Petty harbor.—Petty harbor, 4 miles southwest of cape Spear, at the head of an open bay, is a narrow gully between rocks, 100 yards wide, and 400 yards in length, with 3 fathoms at low water. It is an excellent fishing station, and about 1,000 inhabitants are settled here.

The bay is rocky, and off Motion head, its southern entrance point, the ground is irregular and broken, and although a reef extends only 200 yards from the point, the heavy cross sea met with near Motion head makes it advisable to give it a wide berth. Cape Spear light, open of North head, bearing N. $\frac{3}{4}$ E., clears all danger.

Bull head, 115 feet high, is $8\frac{1}{2}$ miles WSW. $\frac{1}{4}$ W. from Motion head. The coast between is of slate cliffs, and the land behind rises to the height of 700 feet; it is bold-to, and free from off-lying dangers. At 4 miles to the northeastward of Bull head is the Spout, a remarkable natural phenomenon, caused by the rush of waves into an under-water cavern, from which a fissure in the rock allows its escape in jets of

foam. It is most remarkable at high water, and when there is much swell. It makes a roaring noise, and may be seen distinctly 3 miles from the land.

Bay Bulls runs in $2\frac{1}{2}$ miles W. by N., and is a mile wide at the entrance. It is exposed to the sea, but a slight change in its direction above Pepper-alley point adds to the protection of the anchorage, and the holding-ground is good, being of sand and mud. The best anchorage is off the mouth of a little brook on the north side, in 10 fathoms water.

There are about 700 inhabitants, who are principally engaged in the fisheries; the ground is cultivated to some extent. Water can be had in abundance from the river at the head of the bay. After heavy gales from the eastward much ground swell enters the harbor, but not so as to endanger the shipping.

When St. John's harbor is beset with ice this bay is often clear, and vessels may anchor here and communicate with St. John's by land. The mail road, a distance of 18 miles, is in excellent order.

Dangers.—A rock lies S. $\frac{1}{4}$ W. 80 yards from Breadcheese point, about $1\frac{1}{2}$ miles within Bull head.

Maggotty rock lies 120 yards from the shore, off a gravel beach on the south side, $1\frac{3}{4}$ miles from the entrance.

Directions.—Jonclay hill, 810 feet high, on the north side of the harbor, being the highest hill on the coast, will help to guide the stranger to Bay Bulls. With a fair wind, the course in is about W. by N.; keep the north shore aboard after passing Breadcheese point and anchor when convenient. The north side of the harbor is always the better sheltered from the ground swell.

Witless bay, 2 miles S. of Bay Bulls, is too exposed to be recommended as an anchorage. Should, however, a vessel have to anchor for temporary purposes, the best berth is half a mile above Bearcove point, in 8 fathoms, sand. From this point a ledge of rocks, partly dry, extends a quarter of a mile south by west.

Gull island, rocky and wooded, lies off the mouth of Witless bay; it is 240 feet high and steep-to, but too small to afford any shelter. Both this island and South head of Bay Bulls have red cliffs. Witless bay village has about 950 inhabitants and a large church.

Green island lies half mile SE. of Witless point; it is flat, and, faced with cliff 140 feet high; in the direction of Witless point there are some dry slate ledges, and 100 yards southeastward of it is Man-of-war rock, with 6 feet water on it.

Shoal water extends one-quarter of a mile from Witless point, but there is a fair channel between it and Green island, with 5 fathoms water, sand and rock. In running through this passage, keep in mid-channel, with South head of Bay Bulls just shut in with Gull island.

Mobile bay, southwest of Witless point, is $1\frac{1}{2}$ miles deep, but affords no good anchorage. Here there are 230 inhabitants.

Toad cove, the next fishing station south of Mobile bay, with about 350 inhabitants, is protected by Fox, Spear, and Pebble islands; fishing craft anchor here, but it is too exposed to be safe, except in the fine weather of summer.

Fox rock, with 4 fathoms water on it, lies a quarter of a mile N. by E. $\frac{1}{4}$ E. from the south point of Fox island. The other islands are steep-to.

Great island lies S. by W. $\frac{3}{4}$ W. 3 miles from Green island; it is three-quarters of a mile in length, and half a mile in breadth, 300 feet high, and may be distinguished from the neighboring islands by having three hills. The cliffs are of slate, and at its north end there is a dry ledge of slate rocks, 100 yards from the foot of the cliffs. None of these islands are inhabited. Vessels may pass in safety on either side of Great, Spear, or Pebble islands.

Cape Neddick, 260 feet high, is a bluff headland SW. $\frac{3}{4}$ S. $2\frac{1}{2}$ miles from Great island.

Offer rock, with 6 fathoms water on it, lies S. by E. $\frac{3}{4}$ E. $1\frac{1}{4}$ miles nearly from the cape, and should be avoided in heavy gales.

Brigus-by-south is a boat harbor, a mile northwest of Brigus head. There is a church on its north side visible from seaward.

Cape Broyle, showing a front to the eastward $1\frac{1}{2}$ miles in length, is a remarkable wooded headland rising abruptly from the sea 553 feet high, and forms the south head of Broyle harbor.

Old Harry rock, with 12 feet water on it, lies ESE. $\frac{1}{2}$ E. half a mile from the north extreme of cape Broyle, and is cleared by keeping Ferry-land church open of Stone islands bearing SW. $\frac{1}{4}$ S.

Horse rocks, with 5 fathoms on them, lie ENE. $\frac{1}{4}$ E. half a mile nearly from the north extreme of the cape.

Broyle harbor runs in W. by N. 4 miles between Brigus head on the north and cape Broyle on the south. It is $1\frac{1}{2}$ miles wide at the entrance, but is too exposed to the sea to afford safe anchorage in any weather. The usual anchorage is in Admirals cove, in 11 fathoms, mud; but above Carrier point there is anchorage in 7 fathoms, mud, more sheltered.

A church stands on the north side near the head of the harbor, and there are about 480 inhabitants. The land is fertile, and cows, sheep, and goats are kept by the inhabitants. Water can be obtained at the waterfall in Spout cove.

Saturday ledge, with 6 feet water on it, lies half a mile above Admirals head. To avoid it, keep Brigus head well open of Admirals head.

Harbor rock, with 12 feet on it, lies about half a mile above Carrier point, and above where vessels usually anchor.

In clear weather a stranger with the chart will find no difficulty in entering Broyle harbor. From seaward, with a fair wind, after recognising cape Broyle, steer for the middle of the harbor until nearing Admirals head on the north shore; then haul in for the anchorage in Admirals cove; or, if wishing to proceed further in, keep sufficiently over towards the south shore to avoid Saturday ledge and anchor about 400 yards above Carrier point.

Tides.—It is high water in Broyle harbor, full and change, at 7h. 20m.; springs rises $5\frac{1}{2}$ feet, neaps $3\frac{1}{2}$ feet.

Caplin bay, on the south side of cape Broyle, runs in WNW. $\frac{1}{2}$ W. 2 miles. It is clear of danger, the holding-ground is good, but it is open to the sea like the other bays along this coast. The entrance on either side of Goose island is nearly half a mile wide. Goose island is 70 feet high, steep-to, except on the northwest side, where 50 yards off are two rocks that cover and uncover. Stone islands, under the south extreme of cape Broyle, are steep-to on the south.

The shoal ground, extending from Coldeast point, westward of Goose island, is cleared by keeping Hare's ears open of Bois island.

Ferryland harbor, $1\frac{1}{2}$ miles nearly S. of cape Broyle, is small but easy of access. The holding-ground is good, and the anchorage is secure except in strong easterly gales, when much swell enters the harbor at high water, between the rocky islets extending from Bois island to Coldeast point, which form its north side.

Ferryland head is 125 feet high, and joined to the mainland by a narrow isthmus, which forms the south side of the harbor. The entrance between Bois island and Ferryland head is only 200 yards broad, but inside the harbor widens to 400 yards. The best anchorage is in 10 fathoms, sand and mud, on the line joining Coldeast point and Pool beach, between two churches at the head of the harbor.

There are about 900 residents here and in Caplin bay, and the land is of fair quality, and cultivated to a greater extent than usual. Water is scarce in Ferryland, but can be obtained from Caplin bay. There is a court-house here, a jail, and two churches; one of the latter can be seen from seaward. The Pool affords winter shelter to fishing boats.

Light.—From a tower built of red brick on Ferryland head a *fixed white* light is exhibited at an elevation of 200 feet above the sea, and may be seen in clear weather from a distance of 16 miles. The keeper's dwelling is painted white with a red roof.

Directions.—There are no dangers, except near the shore on either side. Being off Ferryland, bring the southernmost church at the head of the harbor in the center of the passage between Ferryland head and

Bois island W. $\frac{1}{2}$ N., and run in upon this bearing. After passing the narrows, steer a little northward to avoid the shoal water off Pool beach.

Hare's ears are two remarkably shaped slate rocks, 50 feet high, separated from Ferryland head by a narrow boat channel, and steep-to. Burnshead rock, with 15 feet water on it, lies 300 yards to southward of Ferryland head.

Between Ferryland head and the entrance to Aquafort harbor is Crow island, 70 feet high, and 200 yards SE. by E. $\frac{3}{4}$ E. from it is Crow rock, nearly dry at low water.

Aquafort harbor, WSW. $\frac{1}{2}$ W. 2 miles from Hare's ears, is a little more than 400 yards wide at the entrance, and runs in W. $2\frac{1}{2}$ miles between high steep hills. The anchorage is good, and vessels may lie in perfect safety in 9 fathoms, mud, abreast of the small and outer chapel on the north side. The water is generally smooth, and but little sea swell finds its way up the harbor, except during heavy easterly gales.

Spurwink island, 40 feet high at the south side of entrance, is bold-to; so also are the rocks off the North head. Except a small rock, lying 120 yards from the north shore abreast of the Roman Catholic chapel, there are no dangers in the harbor. Above the beach at the harbor head there is a small deep pool, useful for careening and where fishing craft winter. There are only about 240 inhabitants here, although the land is fertile and well wooded. Salmon and trout abound in the two rivers which run into it. Water can be obtained easily.

Directions.—From seaward, bring the harbor open and run in on a W. course, passing Spurwink island, and when abreast of the outer chapel anchor in 10 fathoms, mud.

If the wind is contrary, a vessel may work up and anchor as convenient, caution being observed to avoid Burnshead and Crow rocks on the north; and Lawler rock on the south, when outside, and the shoal water bordering the north side when within, the harbor.

Aquafort rocks.—At 400 yards N. from Bald head are Aquafort rocks, awash at high spring tides. And at 400 yards about SSW. from the same head are Clearcove rocks, also awash at high water.

Fermeuse harbor.—At about $3\frac{3}{4}$ miles SSW. from Ferryland head is Fermeuse harbor. It is 400 yards wide at the entrance and runs in WNW. $2\frac{1}{2}$ miles. This harbor is a favorite fishing station, and is more frequented than Aquafort, being less land-locked and the anchorage more convenient. There are about 600 inhabitants; the principal settlement is in Admirals cove, on the north side, where there is a Roman Catholic church and a nunnery. Fishing vessels generally anchor in this cove because of its nearness to the open sea, but there is more roomy

anchorage in Kingman cove, a mile farther in, on the south shore. But the safest anchorage is above Sheep head, in 6 fathoms, mud.

Dangers.—Mad rock, with 4 feet water on it, lies 100 yards from the south side of the entrance, and is cleared by keeping Blow-me-down head on the south shore of the harbor open of Traces point.

The Bar shoal is of rock, with 9 feet water on it, and lies 450 yards east of Sheep head, at the head of the harbor.

Directions.—Bring the harbor open on a WNW. $\frac{1}{2}$ W. bearing and steer for it. After passing Admirals cove on the north (which may be known by its church) alter course to W. $\frac{1}{4}$ N. When Northern head touches Blow-me-down head, bearing E. $\frac{1}{4}$ S., anchor in Kingman cove in 12 fathoms. Or, if wishing to proceed farther in, keep near the north shore by the lead, and having passed Sheep head, anchor about 200 yards NW. from it in 6 fathoms, mud.

Water can be obtained at various places on either shore.

Rocks.—At about a mile southward of Southern head of Fermeuse harbor, off Bearcove point, is a rock, 200 yards from the shore, with 3 fathoms water on it; and nearly three-quarters of a mile NE. $\frac{1}{2}$ N. from Sculpin point, on the north side of entrance to Renewse harbor, is Sunker rock, with 4 feet on it.

Renewse harbor runs in 2 miles NW. from Renewse head, the south point of entrance; it is exposed to the sea and offers very indifferent anchorage even to small vessels. Nevertheless its convenient position with regard to the fishing ground renders it a resort during the summer season. It has many dangerous rocks, which should be carefully avoided. The village, containing about 850 inhabitants, with its church, is on the northeast side and about a mile from Renewse head, but is not seen from seaward.

The best anchorage is off the village, in 3 fathoms water, 300 yards WNW. of Anchor rock. Above this the water becomes shoal and the bottom strewed with bowlders, leaving only a narrow channel, with 3 feet water, to a small pool near the head of the harbor, where fishing craft careen and winter. In bad weather the whole harbor is a mass of breakers.

Dangers.—**Kettle-bottom rock**, with 6 feet water on it, lies at the entrance of the harbor, about a quarter of a mile S. by E. of Northern head. Sculpin shoal, with 3 fathoms water on it, lies E. by S. from Northern head, and about 350 yards from the nearest shore. **Whale-back rock**, awash at low water, lies about S. 200 yards from Northern head.

White horse shoal, with 6 feet water over it, lies WNW. $\frac{1}{4}$ W., distant 300 yards from Shag rock. The northernmost conspicuous two-

storied house on the eastern shore of the harbor open west of Anchor rock, bearing N. by W. $\frac{1}{2}$ W., leads west of this shoal.

Shoal.—A shoal, with a depth of 12 feet over it, is situated SSW. $\frac{1}{2}$ W., distant nearly 200 yards from Anchor rock, and nearly in the middle of the apparent channel to the anchorage.

To avoid this shoal vessels should either keep near the southern shore of the harbor or pass Anchor rock at a distance of 100 yards.

Bearcove point, open east of Sculpin point, bearing NNE. $\frac{3}{4}$ E., leads close south of the shoals at the entrance to Renewse harbor.

Rock.—There is also a rock, with 5 fathoms water, 400 yards SE. by E. from Shag rock.

Directions.—Renewse head rises from slate cliffs in two wooded hummocks to the height of 200 feet, and is steep-to. Open the harbor and run in about WNW., so as to pass about 200 yards from Renewse head; then keep along the southwest shore until past Shag and Anchor rocks, and anchor in 4 fathoms, sand. Water can be obtained from a brook in the village.

Bantam banks.—At about 4 miles from the coast, between Fermeuse harbor and Burnt point, southwest of Renewse harbor, are Bantam fishing banks; they extend about 5 miles NNE. and SSW., and are not more than half a mile wide, having irregular soundings from 9 to 30 fathoms water over rock. The northern bank, called Fermeuse Bantam, lies ESE. $\frac{3}{4}$ E. $2\frac{1}{2}$ miles from Bearcove point, and about $1\frac{1}{2}$ miles from the southern banks.

Caution.—With the above exceptions, all along the coast from St. John's harbor to cape Ballard the soundings are deep, so that 90 fathoms are found at 6 miles from the land, and often 30 fathoms within half a mile of the rocks. On this account the lead is not a sure guide; nevertheless, in approaching the land in a fog, speed should be frequently slackened and soundings taken, which, if carefully compared with the chart, will give some approximation of the vessel's position and prevent disaster.

During southwest and light southeast winds, often when near the coast, especially under the lee of a point, a vessel will suddenly emerge from the fog and every feature of the land will be distinctly visible.

The coast from Renewse head to cape Ballard trends S. by W. $7\frac{1}{2}$ miles, is comparatively low, and can be approached to a moderate distance. The hills retreat from the shore and rise 700 feet high.

Renewse islet.—A low rock, called Renewse islet, lies about three-quarters of a mile south of Renewse head, and separated from the land by a narrow boat channel.

Renewse rocks lie about S. by E. $\frac{1}{2}$ E. 2 miles from Renewse head, and $1\frac{1}{2}$ miles from the shore. They are always from 6 to 10 feet above

water; and a rock with 6 feet water on it lies 100 yards E. by S. of them. In bad weather the sea breaks over them heavily. Vessels may go between them and the shore in fine weather, but in heavy weather it is not safe to do so. Cape Race light-house open south of cape Ballard, bearing SW. by S. leads about a mile east of Renewse rocks.

Cape Ballard rises abruptly from the sea 290 feet high, with a bare round summit. It is the more remarkable because on each side of the cape the land falls, and even in fogs the fishermen recognize this cape by the fog hanging black and dense round its sides; the water is deep close to it.

Chance cove head, about SW. $\frac{3}{4}$ S. 2 miles from cape Ballard, is of dark slate cliffs, 150 feet high.

Black rocks, 15 feet above high water, lie a mile southwestward of the head, and in front of Chance cove.

Chance cove is exposed to the sea, and has a gravel beach at its head. During northeast winds, coasting vessels anchor here in 4 fathoms, sand. The S. S. *Philadelphia* was run upon the sand in this cove in 1854, and in 1863 part of her iron frame was to be seen. On the northwest side of the cove there is a small fishing settlement; their boats and fishing stages are protected by a shoal of sand and stones, upon which the sea breaks.

French cove, southwest of Chance cove, is rocky.

Clam cove, nearly 4 miles N. by E. $\frac{1}{4}$ E. of cape Race, is the outlet of a shallow stream. In this cove were buried the remains of the 240 passengers drowned in the S. S. *Anglo Saxon*; a neat fence and inscription marks the place. In ordinary weather boats can land here safely. Between this cove and cape Race the coast is cliffy and broken, with here and there a small cove where a boat might land in favorable weather.

CHAPTER IX.

COAST OF LABRADOR—CAPE ST. LEWIS TO GRAND POINT, INCLUDING THE STRAIT OF BELLE-ISLE.

The coast of Labrador from cape St. Lewis (in lat. $52^{\circ} 21\frac{1}{4}'$ N., long. $55^{\circ} 38\frac{1}{2}'$ W.) to York point, a distance of nearly 30 miles in a southwest direction, is composed of bare granitic hills, which, excepting in the vicinity of Chateau bay, do not exceed the height of 700 feet above the level of the sea, but appear much higher because they usually rise abruptly from that level. Several of the bays and inlets are large, with bold shores and very deep water. Neither the islands nor the dangers of this coast are so numerous as to render navigation intricate or difficult; so that if it were not for the frequent fogs, the heavy easterly swell rolled in from the Atlantic, and the icebergs, which are almost always drifting along with the current from the northward, it might be considered a safe coast for vessels.

Fisheries.—There are only a few permanent inhabitants, but cod fishery is carried on extensively by the inhabitants of Newfoundland, who bring their families for the season, and have huts and fishing stages at almost every bay, cove, and harbor. The principal fishing stations are at Battle and St. Charles harbors. The fishery is carried on in small brigs and schooners, generally of from 30 to 100 tons, and in boats. The vessels return to Newfoundland, and only a very few persons are left, who winter up the bays of the mainland to hunt for furs, and to be ready for the seal fishery at the breaking up of the ice in spring. The boats are hauled up on the rocks, or taken into coves of the mainland, where they are covered over with spruce branches, and are thus secured or the winter.

The climate on this coast is extremely severe, the mean temperature of the year being below the freezing point. At Chateau bay about the last of July, the earliest plants are just springing up, and grass only just beginning to give a shade of green in sheltered spots between the hills. The temperature of the sea outside the bay at this time is about 32° , and the air at 43° Fahrenheit, in the warmest period of the day. The fishermen, however, report that it is much more cold about Chateau bay, and the north side of the Atlantic entrance of the strait of Belle-isle, than farther to the northward, and also that fogs are of more frequent occurrence. It would seem that this low temperature is common to the entrance of narrow straits, for not only is the surface of the sea colder here than elsewhere in the neighborhood, but also at Mingan, point de Monts, and Bic, on the river St. Lawrence; and the low tem-

perature of the air obviously depends upon that of the sea; for on proceeding only a very few miles up the bays, the increase of temperature is immediately perceived.

Cape St. Lewis is of precipitous and dark-red granitic hills, about 600 feet high. At its southeastern extremity there is a small rocky peninsula; and nearly a mile NE. $\frac{1}{2}$ E. of this lies St. Lewis rock, small, low, black, and close to the shore, with deep water at a distance of 400 yards.

The highest land over cape St. Lewis has two summits, and falls abruptly to Fox harbor. It is partly wooded, the underlying rocks when visible being of a reddish-gray color. The shores and islands of St. Lewis sound present generally the same characteristics.

St. Lewis sound, open to the eastward, is more than 4 miles wide at the entrance, between cape St. Lewis and North or Great Battle island; this island bearing from the south extremity of the cape, SSE. The sound, from its entrance to Mary harbor head at the entrance of St. Lewis inlet, is 8 miles deep in a W. direction. Its northern shores are formed by the mainland; and the southern by Battle, Great Caribou, and several other islands, for about 5 miles in, after which the mainland is on both sides. The shores are in almost all parts quite bold; and the water is everywhere extremely deep, often exceeding 50 or 60 fathoms. Nearly in the center of the sound are Middle rocks, and farther in River islands.

Tides.—It is high water, full and change, in St. Lewis sound at 6h. 40m. Springs rise $3\frac{1}{2}$ feet, and neaps 1 foot.

Fox harbor, $1\frac{3}{4}$ miles westward of the south extremity of cape St. Lewis, is a cove of the mainland, running in nearly a mile to NE., and forming quite a secure anchorage in from 5 to 8 fathoms, over mud bottom. The entrance of this harbor is only about 200 yards wide, with a depth of 3 fathoms, but the harbor is more than twice as wide within. The east entrance point is low, with several houses of the fishermen upon it, and there is a small rock above water close off it to the north-westward, and joined to it by shoal water.

A large bank, with a least depth of $5\frac{1}{2}$ fathoms water, lies southward of the entrance to Fox harbor, from which it is a quarter of a mile distant.

Water may be had in Fox harbor from streamlets and ponds, but wood is very scarce.

Directions.—No other directions for Fox harbor are necessary than for a vessel to sail in to the northwestward, close past the point on which the houses stand, and then, leaving an unsheltered bay running to the north on the port hand, haul round the rock above water to the

eastward into the harbor. In order to pass in the deepest water the rock should not be left more than 100 yards on the starboard hand, for there is a reef, partly above water, off the south extreme of the point, which separates the harbor from the unsheltered bay to the westward of it, and forms the north side of the entrance. The best berth to anchor in is about 600 yards within the entrance.

Deer harbor is formed by Marnham island, which is narrow, of considerable height, and about $1\frac{1}{2}$ miles long. The eastern entrance, between the east end of this island and the main, is narrow and only fit for boats. The principal entrance, which is 5 miles W. $\frac{1}{2}$ N. of cape St. Lewis, is between the west extreme of the island and Deer point, 800 yards wide, with a depth of from 19 to 31 fathoms in the middle and bold to the rocks on either side. The harbor to the northward of the island is of the same breadth, extensive enough for a large number of vessels, and quite landlocked. The best anchorage is off a small creek on the north shore in 9 fathoms, mud; but shelter will be found anywhere in 13 to 18 fathoms, mud. The water runs shoal off Danger point, the middle of the north side of the harbor, for 300 yards. The course and distance from North Battle island to the entrance of Deer harbor is NW. $\frac{3}{4}$ W. 8 miles.

Shoal.—A shoal, with 13 feet water on it, lies half a mile SSE. of the boat-channel into port Marnham and 300 yards off shore.

There are no dangers that cannot be seen either in the entrance or within this harbor, and there is room for the largest vessels to beat in or out, so that no particular directions seem necessary. The course in from St. Lewis sound, between Deer point and Marnham island, is NW. $\frac{1}{2}$ N.; and then ENE. $\frac{1}{2}$ E. into the harbor, between the island and the main; or W. $\frac{1}{2}$ N., up the cove in that direction, where there is also secure anchorage in a more convenient depth of water than in the harbor, but with less room for large vessels.

Water may be obtained from small streams of water or ponds of rain water in various parts near the shores of Deer harbor; and there are a few small trees up the northwest cove, but fire-wood is scarce.

Long harbor is immediately to the southwest of the entrance of Deer harbor; Deer point, which is the west point of entrance of the latter, being also the north point of entrance of the former. The south point of entrance of Open bay is of green feldspar, bearing from Deer point SE. $\frac{3}{4}$ S. $1\frac{1}{2}$ miles, and having off it, at the distance of half a mile to the E., Shag rocks, 6 feet high. The harbor runs in $4\frac{1}{2}$ miles W. $\frac{1}{2}$ N., and is about half a mile wide, with deep water. There is good anchorage near its head; but it is completely open to wind and sea from the east, and is not a safe place for vessels.

Directions for St. Lewis sound.—The entrance of the channel leading to St. Lewis inlet, is between Shag rocks and Anthony islands,

which are the easternmost of River islands. This entrance is more than a mile wide, with very deep water, and the course and distance to it from cape St. Lewis is WSW. $\frac{1}{2}$ W. $3\frac{1}{2}$ miles; or a vessel bound to St. Lewis inlet may take departure from North or Great Battle island. Steering from it NW. by W. $\frac{1}{2}$ W. a run of $2\frac{3}{4}$ miles will lead to Gull rocks, which are two bare rocks close together and about 25 feet high. Give these rocks a berth of 400 yards or more, leaving them to the westward or to port, and then continue the same course for 2 miles or more, when the two Anthony isles (small and bare, with shoal water a short distance off their northeast extremes) will be about 800 yards to the southwestward.

Alter course now to W. $\frac{1}{2}$ S. and run in through the channel to the northward of River islands, and between them and Shag rocks, Bay point, &c. This channel is nearly three-quarters of a mile wide in the narrowest part, and there is deep water, with nothing in the way excepting two small islets, which will be readily seen and may be safely passed to the southward at the distance of 200 yards. A run of $3\frac{3}{4}$ miles on the W. $\frac{1}{2}$ S. course will place the vessel abreast of Mary harbor head, which is the south point of entrance of St. Lewis inlet, and on the west side of the channel leading to the southward between River islands and the main.

Banks.—Several banks, among which are those known as Eskimo, Northern, and Monday banks, with Blake ground, lie in the entrance to St. Lewis sound, having over them depths of from 10 to 17 fathoms water. Those with 14 fathoms water and less are reported to break in winter gales.

River islands are a group lying at the entrance of St. Lewis inlet, and consist of Captain Jack island, Duck island, and Anthony isles. The former and westernmost is separated from Mary harbor head by a deep and clear channel 800 yards wide, and from Duck island to the eastward by an unnavigable channel of the same breadth, but full of rocks above water. Both these islands are of bare granite, 150 feet in height, and they are each about 3 miles in circumference. Around and off the east end of Duck island there are several small and bare islets, the two easternmost of which are Anthony isles; and there is also a small sunken rock, on which the sea usually breaks, bearing SSE. $\frac{1}{2}$ E. from the end of Duck island and at the distance of a quarter of a mile from its southeast extreme. To the westward of River islands, and between them and the main, it is possible to anchor, but the depth of water is great, exceeding 30 fathoms, over mud bottom, except when close to the islands, and, as considerable swell often rolls in, the riding is insecure.

Anthony islands.—These are two small rocks, the northern wedge-shaped and bare, the southern pyramidal and covered with turf; the

northernmost one lies $1\frac{3}{4}$ miles to the SE. of Bay point, and the other one about 500 yards SSW. of this.

Shoal ground, with a depth of $4\frac{1}{2}$ fathoms water on it, is situated NW. $\frac{1}{2}$ W. 600 yards distant, and a rock, with 7 feet water over it, bears NE. by E. $\frac{1}{2}$ E., 600 yards distant from the northernmost of Anthony islands.

A chain of rocks, the shoalest of which has a depth of 2 feet water on it, extends a quarter of a mile southeastward of the east extreme of Duck island, and a shoal, with $3\frac{1}{2}$ fathoms water over it, lies 800 yards farther in the same direction, bearing S. 1,200 yards distant from the southernmost of Anthony islands.

St. Lewis inlet is nearly a mile wide at the entrance and becomes wider within. There are bays with several small islands in them on the south side of the inlet, but no good anchorage, on account of the great depth of water and exposure to easterly winds, until as far in as Black Fly island, which is the first in the center of the inlet. The course and distance from the entrance of the inlet to this island is WNW. $\frac{1}{2}$ W. 9 miles. The depth of water often exceeds 30 fathoms in the center of the inlet and is nearly 20 fathoms close to the shores on either side. The bottom is everywhere of mud, and there are no dangers in the way excepting a small rocky shoal 2 miles below Black Fly island, which, being always above water, will readily be seen, and must be left on the port hand in running up the inlet.

Black Fly island is about a third of a mile long, partially wooded, and surrounded with bowlders, which extend from it 600 yards down the inlet, and also from the north point of the island across to the main, so as to leave only one navigable channel, which is to the southwestward of the island. There is good anchorage under the west side of this island, in from 5 to 9 fathoms, over a bottom of mud and stones; and wood and water may be had in abundance.

The navigation becomes intricate immediately above this island, but it is nevertheless possible to take a vessel, not drawing over 18 feet, $5\frac{1}{4}$ miles farther up, where the navigation for vessels is terminated by a flat of sand and bowlders, nearly dry at low water, and extending across the inlet off the mouth of St. Lewis river. A mile below Black Fly island the inlet is only a third of a mile wide, and it contracts again to the same breadth immediately above the island. Farther up it expands to more than a mile wide, and in this wide space, $1\frac{3}{4}$ miles above Black Fly island, lies Wood island, which is nearly a mile long and 600 yards broad. This island is also surrounded with bowlders, leaving a very narrow channel with 2 fathoms water between it and the mainland to the southwest, but the channel northward of the island is rather wider and has from 3 to 14 fathoms water in it. This island is thickly wooded, and so are the shores on either side, with spruce and birch, which supply timber large enough for building schooners and boats.

The trees increase in number and size from the entrance to the head of the inlet, where the climate is quite different from what it is on the coast, where the sea is often at the freezing point, and the temperature of the air not much higher at times, even in the warmest summer months. At the head of the inlet the weather is sometimes inconveniently warm, with westerly winds, and mosquitoes and black flies innumerable. The fishermen from Newfoundland obtain the wood necessary for fishing stages, &c., from this inlet, and sometimes build boats there. The scenery is beautiful, the granitic hills rising occasionally, on either side of the inlet, to the height of 700 or 800 feet above the sea. There are high clay cliffs at the mouth of St. Lewis river, at the head of the inlet. There is not water enough for boats over the flats of sand and boulders at the entrance of this river, and it has not, in consequence, been examined. The water, however, is still quite salt off its mouth, so that it is probably, as fishermen report, but a small stream. There was a great salmon fishery carried on here several years ago, but it is said to have completely failed.

Mary harbor, at the head of a bay of the mainland, one mile deep, is on the south side of Mary harbor head, and W. by S. about three-quarters of a mile from the southwest side of Captain Jack island. It is small, with 3 fathoms water, and only fit for small vessels. Farther out in this bay there is more room, and greater depth of water, but the riding is rendered unsafe by the easterly swell which occasionally rolls in round the islands.

Shoal harbor is another bay of the mainland, $1\frac{1}{2}$ miles deep, with two small islets, and several rocks in it. Only 12 feet can be carried in between these islets and the south side of the bay. It is therefore only fit for small vessels. This harbor is $1\frac{3}{4}$ miles to the southward of Mary harbor head, and one mile SW. $\frac{1}{2}$ W. from the west end of Duck island.

Marley rocks.—These rocks form a dangerous shoal off the entrance to Kyer cove, occupying a space 600 yards long, with a depth of 6 feet water on them, and situated W. by N. $1\frac{2}{3}$ miles distant from Kyer cove point, and half a mile distant from the south shore of Kyer cove. Green island entirely open north of Kyer cove point, bearing E. $\frac{1}{2}$ S., leads north of these rocks.

A small rock, with 10 feet water on it, is situated south 800 yards distant from Marley rocks, and 550 yards distant from the south shore of Kyer cove.

A small rock lies close to Lion's head, a projection on the south shore of Kyer cove, at one mile westward of Kyer cove point.

Kyer cove, about $1\frac{1}{2}$ miles to the southeastward of Shoal harbor, is exposed to the northeasterly swell, and consequently of no use to vessels. From this bay the mainland extends to the northeastward, form-

ing a high point, called Club cape, which has a reef off it 140 yards to the eastward, and bears SE. by S. $1\frac{1}{2}$ miles from the east end of Duck island. There is no danger in the channel between this cape and Duck island, except the sunken rock to the southward of the east extreme of that island, which has been already mentioned.

Green islands.—Club cape bears from Great island W. $\frac{1}{4}$ N. $4\frac{1}{4}$ miles; and Green islands (one large rock, with three smaller ones near, and to the southeast of it) lie in the same line of bearing $1\frac{1}{4}$ miles from Club cape, $2\frac{1}{2}$ miles from Great island, nearly a mile S. $\frac{1}{2}$ W. from Gull rocks, and NW. $\frac{1}{2}$ N. a mile from Caribou point, the northwest extreme of Great Caribou island. There are clear channels on all sides of, and between, Gull rocks and Green islands; but they should not be approached nearer than 400 yards by strangers, except in fine weather.

A shoal, with $4\frac{1}{4}$ fathoms water on it, lies W. $\frac{1}{2}$ N. 200 yards distant from Green islands; and Green island bank, a large bank with a depth of 7 fathoms water over it, is situated ENE. $\frac{1}{2}$ E. 800 yards distant from Green islands.

Two banks bear NW. $\frac{1}{2}$ N. from the westernmost of Gull rocks, the southernmost, with 5 fathoms water over it, being 900 yards, and the northern, with $6\frac{3}{4}$ fathoms water over it, 1,250 yards distant.

St. Charles River.—Between Club cape and Battle islands, the south side of St. Lewis sound is formed by large islands. Assizes island is the western of these, and Nimrod tickle, between it and the mainland to the northward, leads into St. Charles River. The entrance to this channel is southeastward $1\frac{1}{4}$ miles from Club cape, and the course and distance to it, from the north extreme of Great island, is WSW. $\frac{3}{4}$ W. $3\frac{3}{4}$ miles. Nimrod tickle is 470 yards wide in the narrowest part, and is free from danger, except some rocks, which will be seen on the south side, and which extend about 200 yards from the shore, both at the north and west points of Assizes island. The mainland side should therefore be kept aboard, and a good lookout kept, for the channel has not been very carefully examined. The course and distance through it, from the sound to the mouth of St. Charles river, where there is roomy and landlocked anchorage, is SW. by W. $\frac{1}{2}$ W. one mile. Copper island and Hare island lie to the southeast and south, respectively, of Assizes island, and between it and Great and Little Caribou islands.

St. Charles river runs WSW., and is nearly a mile broad. But about 2 miles from its mouth the channel becomes narrow and intricate, though navigable for vessels for $1\frac{1}{2}$ miles farther, above which point there are only 6 feet water, in a narrow channel with many rocks. Wood and water are abundant up this inlet. The mouth of the river is called the Lodge.

Assizes island.—This island, formerly known as Muddle island, forms the western side of the northern entrance to Caribou channel and

the northwest shore of Assizes harbor. Near the center is a hill 280 feet high, generally flat at the summit, with a few small elevations, falling steeply to Nimrod tickle on the north and Assizes harbor on the south side. It is partly covered with turf and small wood, and the underlying rock when visible is white in color.

The east shore of Assizes island is indented by deep fissures and fringed by a bank, the northern portion of which, having $7\frac{1}{2}$ fathoms over it, is known as Parson's ground. This bank causes a heavy sea to break with great fury on the island in bad weather.

The Rags, a cluster of rocks, the highest of which is 8 feet above high water, lie close to the north extreme of Assizes island, but have no danger beyond a short distance from them.

A bank, with nine fathoms water, bears E. by N., 1,300 yards distant from the Rags, and 870 yards distant from the nearest part of Assizes island.

Copper island forms the northeast side of Assizes harbor, and is wedge-shaped, the summit, 137 feet high, being near the north extreme. The north side falls steeply and in some parts is cliffy, while the east and west sides slope more gradually. Near the south extreme of the western shore there is a small green sward.

A small islet, 15 feet high, lies close to the southeast extreme of Copper island, and a rock about 5 feet high joins the south extreme of this islet. Shoal water extends 70 yards southeastward of this rock.

Hare island (Size island) is separated from Assizes island by a channel 70 yards wide and encumbered with rocks, but through which a depth of 13 feet water can be carried with accurate local knowledge. It should not be attempted otherwise.

This island has a flat topped hill, 192 feet high, near the north extreme, and a peaked hill, 155 feet high, near the southeast extreme. A deep valley, in which is a large pond, extends through the middle of the island in a north and south direction. The east and south shores are indented by several small coves, the westernmost lying north of a peninsula 46 feet high. The south extreme is marked by some low islets. Some rocks that dry at low water are situated eastward of the east extreme, and shoal water extends from them 100 yards to the eastward.

Assizes harbor.—This harbor is comprised between Assizes, Copper, and Hare islands. It is entered from the northward between Assizes and Copper islands, and from the southward between Copper and Hare islands. The harbor trends WNW. for 700 yards between the latter islands, with a breadth of 450 yards, and then turns sharply to WSW. for 650 yards between Assizes and Hare islands, where it is 400 yards wide at the eastern part. At the west extreme of the harbor is a shal-

low creek indenting Assizes island, on the south bank of which is a promontory about 20 feet high. There are a few houses on this promontory.

The entrance to the harbor is encumbered with shoals, and these have been further increased by ballast thrown overboard from vessels at anchor in the western part. Those off the north coast of Hare island have depths over them of from 10 to 15 feet water, and are nearly 200 yards distant from the shore. The north extreme of Indian island, in line with the south extreme of the islet southeastward of Copper island, bearing E. $\frac{1}{2}$ S., leads north, and the north extreme of Copper island, shut in with the south extreme of the high-water line of Assizes island, bearing N. by E. $\frac{3}{4}$ E., leads northeast of these shoals.

The shores of the harbor are free from danger beyond the distance of 70 yards, with the exception of the shoals above described and a small spit of rock extending from the east extreme of Assizes island. This spit extends into the channel between Assizes and Copper islands but falls quickly to deep water.

Shoals extend to the eastward 300 yards from the east and northeast shore of Hare island, with depths of from 10 to 18 feet water over them, and others fringe the southeast and south shores of that island for a distance of 150 yards. The east extreme of Tilcey (Blackhill) island just open east of the east extreme of Little Caribou island, bearing SE. $\frac{3}{4}$ S., leads close east; and the sharp peak at the west end of the range in the center of Great Caribou islands, bearing ENE. $\frac{3}{4}$ E., and open north of Indian island, leads north of these shoals.

Water may be obtained generally from a small stream running into the head of the creek on the west side of the harbor.

Tides.—It is high water, full and change, in Assizes harbor at 7h. 5m. Springs rises 4 $\frac{3}{4}$ feet, and neaps 3 $\frac{3}{4}$ feet.

Little Caribou island is separated by a channel 300 yards wide from the southeast shore of Hare island, which is narrowed to 135 yards by the shoal water off Hare island and a fringe which surrounds Little Caribou island, the greatest extent of the shoal off the latter being on the east side, extending for the distance of 100 yards from the coast.

Little Caribou island is 129 feet high and pyramidal in shape, rising gently on all sides but the west, where a small elevation breaks the slope.

It is partially covered with turf over whitish rock, and there is stunted wood in the hollows.

Shoal.—A dangerous ledge, situated 150 yards eastward of Little Caribou island, is 335 yards long, 150 yards wide, and has 2 feet over it at low water. The clear channel between this ledge and Little Caribou island is only 65 yards wide, with a depth of 4 $\frac{1}{2}$ fathoms water. No natural marks can be given for leading through this channel, but by rounding the east extreme of Little Caribou island at a distance of more than 30 yards all danger on that side will be avoided.

In ordinary weather the shoal water surrounding the ledge may be readily seen showing over a white bottom, while the shoalest parts are covered with kelp, and the channel to the westward appears of a dark color.

A small shoal, with $3\frac{3}{4}$ fathoms water over it, is situated N. by W. $\frac{1}{2}$ W. 350 yards distant from the east extreme of Little Caribou island.

Great Caribou island forms the east side of Caribou channel, leading to Assizes harbor. Black head, the southwestern extreme, falls steeply to the sea from an elevation of 200 feet, and slopes gradually on the north side to a marsh a few feet above high water, which extends from Sand cove (Pond bay) on the west to Cartridge bight (Caribou bay) on the east side.

Water may be procured from ponds on this marsh at a short distance from Sand cove.

A shoal bank extends from the north side of Black head across Sand cove, extending 300 yards from the shore, with depths over it of less than 3 fathoms water, and a rock, with 2 feet water over it, on the southern part, at 200 yards from the nearest shore.

There is a narrow channel, with a depth of $3\frac{1}{2}$ fathoms water in it, between this bank and the ledge east of Little Caribou island, but no marks can be given for passing through it.

A rock, with 15 feet water on it, lies 300 yards northwestward of this bank, and S. by E., 450 yards distant from the south extreme of Indian island; a small shoal, with a depth of $4\frac{1}{4}$ fathoms water, bears S. $\frac{3}{4}$ W., 265 yards from the same point.

Indian island is joined at low water to the middle of the west side of Great Caribou island by a bank of gravel connecting it and several low islets. It is 75 feet high, covered with turf over reddish-gray rock, and generally flat, the summit falling more steeply to the north and northeast extremes than to the southward.

Assizes rock, with 4 feet water, is the shoalest part of a shoal bank 335 yards long in a north and south direction, and nearly 200 yards wide, situated 200 yards westward of the southwest extreme of Indian island. The eastern summit of Tilcey (Blackhill) island (near the east extreme) in line with the east extreme of Little Caribou island, bearing SE. by S., leads west; and Cape St. Lewis open north of Caribou point (cape Surf), bearing N. by E. $\frac{1}{4}$ E., leads northwest of this rock and nearly over Mid rock.

A shoal, with $4\frac{3}{4}$ fathoms water over it, lies 150 yards westward of the northwest extreme of Indian island.

Mid rock, with 8 feet water on it, is situated N. by W. $\frac{1}{4}$ W. 400 yards from the north extreme of Indian island. Little Caribou island,

entirely open west of Indian island, bearing SSE. $\frac{1}{4}$ E., leads west; and the southeast summit of Hare island in line with the east extreme of the islet southeast of Copper island, bearing SW. by S., leads north-west of this rock.

Indian cove is the shallow channel between Indian island and Great Caribou island, and affords good shelter for fishing craft as far south as the first narrows, beyond which only small boats can proceed. Numerous houses and fishing stages line this cove.

Green cove, a small shallow indentation, is situated 600 yards northward of Indian cove. A conspicuous trap-dike in the gray rock marks the south entrance point to this cove.

Mouse island is a small white rock, 14 feet high, at 300 yards northward of Green cove, and separated from Great Caribou island by a narrow channel with a depth 9 feet water in it. A rock, with 6 feet water on it, lies close to the north extreme of Mouse island.

The coast of Great Caribou island, from Indian cove to Caribou point, may be approached to a distance of 100 yards.

Caribou point (cape Surf), the northwest extreme of Great Caribou island, rises to a circular mound 130 feet above high water. The north extreme of the point may be recognized by the striped appearance, caused by an alternation of black and white terraces of rock in vertical stratification.

Caribou bank, with 10 fathoms water over it, is situated NW. $\frac{1}{4}$ W. 300 yards distant from Caribou point.

The height of Tilcey (Blackhill) island is 232 feet, and that of St. Charles Gull island 160 feet.

Directions.—Approaching Assizes harbor from the northward, Caribou point should be rounded, and Copper island steered for till Little Caribou island is entirely open west of Indian island, bearing SSE. $\frac{1}{4}$ E., when Copper island may be rounded at 200 yards distance, the harbor entered, and anchorage obtained in $6\frac{1}{2}$ to 9 fathoms water. By taking care to keep Indian island north extreme just shut in with the south extreme of Copper island, bearing E. $\frac{1}{2}$ S., until the north extreme of Copper island is shut in with the east extreme of Assizes island, bearing N. by E. $\frac{3}{4}$ E., the vessel may anchor in the western part of the harbor.

To proceed through Caribou channel to the southward, after passing Copper island, cape St. Lewis must not be shut in with Caribou point before the east extreme of Little Caribou island is in line with a point midway between the eastern summit of Tilcey island and the south extreme of that island, bearing SE. $\frac{3}{4}$ S. This mark will lead midway between Assizes rock and the shoal water off Hare island. When Little Caribou island is neared, round it at 60 yards distance till St. Charles

Gull island is open south of Great Caribou island, when all danger will be passed.

In ordinary weather this narrow channel shows dark in color, while the shoals on either side are indicated by the white bottom.

If approaching from the southward, the southern shore of Little Caribou island should be steered for, keeping St. Charles Gull island open south of Black head; round the east point of Little Caribou island at a distance of 60 yards, steering for the green sward on Copper island. Bring the point midway between the eastern summit and east extreme of Tilcey island in line with the east extreme of Little Caribou island, bearing SE. $\frac{3}{4}$ S., to lead between Assizes rock and the shoal water off Hare island. Run on this mark till the sharp peak at the west end of the range in the center of Great Caribou island is open north of Indian island, bearing ENE. $\frac{3}{4}$ E., when the harbor may be entered as before directed.

If wishing to proceed to the northward through Caribou channel, when cape St. Lewis is open west of Caribou point, bearing N. by E. $\frac{1}{4}$ E., the south extreme of Copper island may be passed at the distance of 200 yards; and by keeping Little Caribou island open west of Indian island, bearing SSE. $\frac{1}{4}$ E., Mid rock will be cleared when the south-eastern summit of Hare island is shut in with the south extreme of Copper island, bearing SW. by S.

There is a passage between Little Caribou and Hare islands by keeping a third of the distance from the former.

Battle islands form the south point of St. Lewis sound. Double island, 130 feet in height, is the most eastern land on this part of the coast, showing as the extreme both from the southwest and northeast. Although named as one, it is composed of two high islands close together, which lie by themselves, about a mile to the southeastward of the rest of the Battle islands, and are about three-quarters of a mile long, by less than half a mile wide. Great island, 158 feet in height, will be readily known, not only from being the most northern of these islands, but also from its being of high and black precipitous rocks, unlike any of the rest. It is nearly round, and about a third of a mile in diameter. Several smaller islands included in the name Battle islands lie between these two and close off the east end of Great Caribou island, the largest of them being named Battle island. The eastern shores of Battle islands are fringed with shoals, but the whole may be cleared by keeping the east extreme of Double island open east of Gull island, bearing SE. by S., until Caribou point is open north of Great island, bearing WSW. $\frac{1}{4}$ W.

Rib reefs are two ridges of rocks, each about 400 yards in diameter, on which the sea always breaks. They are about half a mile apart, and bear nearly NW. by N. and SE. by S. from each other. The southern

reef lies N. by E. $\frac{1}{2}$ E. three-quarters of a mile from Gull island, and the other NE. by E. $\frac{1}{2}$ E. $1\frac{1}{4}$ miles from Great island.

Middle Ribb, a shoal with 14 feet water on it, lies midway between North and South Ribbs.

Martin bank, with 10 fathoms water over it, lies a third of a mile eastward of North Ribb reef; and **Southern bank**, with 7 fathoms water on it, is situated half a mile eastward of South Ribb reef.

Skinner ledge, with $6\frac{3}{4}$ fathoms water on it, lies a quarter of a mile eastward of Gull island. Strangers should not attempt to run through, but pass outside, or to the eastward of Ribbs reefs, on their passage to and from St. Lewis sound.

Battle harbor, between Battle islands and the northeast extreme of Great Caribou island, is only fit for small vessels, being about 60 yards wide in the entrance, about 150 yards wide within, about half a mile long, and with 4 to 6 fathoms water in it, over mud bottom. It is generally crowded with the vessels and boats of fishermen, which moor to the rocks on either side, and the shores are covered with their houses and fishing stages. There is a good house and store on Battle island, with a high flag-staff, which can be readily seen from seaward. This place is much frequented, and has an Episcopal church with a small spire.

The southern entrance is only fit for boats. Vessels must therefore approach this harbor from the northward, passing to the westward of North Battle, and the other islands lying between it and Battle island, which will be distinguished by the high flagstaff already mentioned. In proceeding to the southward, close past Great island, two small and round islets, about 100 yards in diameter, will be seen, the southernmost of them being in the entrance of the harbor. These are all that are in the way when entering, and they are quite bold, and may be closely passed on either side. They bear SSE. from the south side of Great island, at the distances of about half and three-quarters of a mile respectively. There are two coves, with huts and fishing stages, in Great Caribou island, just to the westward of Battle harbor, but these cannot be mistaken for the latter after the description which has been given. Great caution should be used by steam vessels in the herring season to avoid fouling their screws in the nets.

Battle harbor is reported to be secure during the summer months, but in autumn what is termed the undertow by fishermen, namely, a heavy ground swell, is said to roll in between the islands, damaging vessels and fishing stages, and consequently rendering the harbor unsafe. A very heavy sea occasionally rolls from the eastward into St. Lewis sound, even as far up as the entrance of the inlet, round River islands, and up the bays of the main to the southwestward of them, often coming in without wind, and breaking with fury over islets 30 feet high. The

roar of the surf in a calm night can be heard from a great distance. This high and long rolling sea is, however, far less dangerous to boats, and impedes them less, than the short breaking sea of the Gulf of St. Lawrence. It is an annoyance by preventing landing, but in other respects is of use by discovering shoals, for during its continuance there is no danger with less than 4 fathoms, which has not a breaker upon it. Boats should, however, be on their guard on such occasions, for on some of these shoals the sea does not break constantly, but only occasionally, when it breaks in a sheet of foam, which would swamp any boat that might be over the spot at the time.

Great Caribou island is the largest on this part of the coast, being about 9 miles in circumference. Its southeast side is broken into deep coves open to seaward, and there are several small islets and rocks along it, but only one that is sunken, named Foam rock, which always shows when there is a swell, and lies 260 yards outside of Southern island, a small islet 80 feet high, the next south of Battle Gull island. This rock is the only danger in the channel between Double and Great Caribou islands.

Cape St. Charles bears S. by W. $\frac{1}{2}$ W. $4\frac{1}{2}$ miles from Battle Gull island, and it will be readily known by St. Charles hill, which is round, 654 feet above the sea, bears W. nearly a mile from the cape, and is the highest land on this part of the coast.

St. Charles Gull island, is high, half a mile long, and lies off the cape E. distant about a mile. This island has several large rocks close off its inner side, or towards the mainland. Wall shoal, with 3 fathoms water, lies north half a mile from its northern shore, and must be carefully avoided, as in bad weather; it breaks heavily at times. Fish rock lies outside St. Charles island, 1,200 yards E. by S., and is bold of approach.

A rock awash at low water is situated 150 yards southwestward of the southwest extreme of Fish rock.

Western bank, with 17 feet water on it, bears SW. $\frac{1}{4}$ S., 450 yards distant from the southwest extreme of St. Charles Gull island. It is a small rock and is steep to.

St. Charles channel, between the mainland on the southwest and Great and Little Caribou, Hare and Assizes islands on the northeast, is from a half to three-quarters of a mile wide, with deep water (exceeding 40 fathoms in some places), and no detached shoals. The course and distance up the center of this fine channel, from its entrance to the Narrows, between White Bear point and Hare island, is WNW. $\frac{1}{4}$ W. $3\frac{1}{4}$ miles. Immediately outside the Narrows, on the mainland side, is White Bear bay, running in $1\frac{1}{4}$ miles W., affording no shelter, and full of rocks. Just within the Narrows lies Dumpling island, small, with rocks and shoal water extending 250 yards from its southeast end. There

is no channel for vessels between it and the main; but to the eastward of it, that is, between it and Hare island, the channel is a quarter of a mile wide, and has from 14 to 18 fathoms water in it.

A run of half a mile on a NW. by N. course will lead through the Narrows into the chaunel between Assizes island and the mainland, which is 1,200 yards wide, with a depth of more than 20 fathoms in it, and free from all danger, except those which extend 200 yards from the shore on either side of the bay between Hare and Assizes islands. The course through this channel to the Lodge, the mouth of St. Charles River, is NW. by W. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles, and a vessel may either run up that bay to the westward, or through Nimrod tickle eastward, into St. Lewis sound. Throughout all this extensive and landlocked space there is anchorage, but usually in depths exceeding 20 fathoms, over mud bottom.

Three shoals lie in a direct line E. $\frac{1}{2}$ N. from Wall island.

Inner shoal, with 17 feet water on it, is 650 yards distant; **Middle shoal**, with 4 fathoms water on it, is 1,250 yards distant; and **Wall shoal**, with 9 fathoms water over it, is 1,850 yards distant from Wall island.

The west extreme of Battle Gull island, shut in with the south extreme of Black islet, bearing NNE., leads between Wall island and Inner shoal.

Antill cove, situated westward of Fox island, is 600 yards deep and free from danger beyond a short distance from the shore.

Anchorage may be obtained in 14 to 11 fathoms water as convenient, near the head of this cove, with shelter from all winds except those from the northeastward.

St. Charles harbor is formed by three islands, which lie along the northeastern side of cape St. Charles. The space in which vessels can anchor is about 1,200 yards long, by about a quarter of a mile wide; and the depth of water from 5 to 12 fathoms, over mud bottom. Some swell rolls in with a southeast wind, on which account it is not considered a very secure harbor for large vessels, except in the finest months of summer. Small vessels might be made quite secure by making fast to the rocks between Wall island and the mainland in 9 or 10 feet water. There are houses and fishing stages both on the islands and the main. Wall island is the most southeastern island; and the western entrance to the harbor, between it and the main, is so shallow and narrow as to be only fit for boats. Tilcey island, the next to the northwest, will be readily distinguished, being high, black, and precipitous, unlike any other near. Between this island and Wall island is the entrance to the harbor, 200 yards wide, and with deep water close to the shores on either side. The channel between Tilcey and Fox island, which is the next to the northwest and the only remaining island, is 400 yards wide, only 2 or 3 fathoms water in it, and rendered intricate by rocks. The

channel out of the harbor to the northwest, between Fox island and the main, is narrow, shallow, and only fit for boats. There are permanent residents in St. Charles harbor.

Directions.—To recognize and enter St. Charles harbor, observe that Wall island lies close to the east side of Cape St. Charles, and extends farther out to seaward, so as to appear like the east extreme of that cape. The east extreme of this island forms the south point of entrance to St. Charles channel, and bears NE. by E. $\frac{3}{4}$ E. nearly $1\frac{1}{2}$ miles from the summit of St. Charles hill. Run in for the north side of Wall island, so as to pass its east extreme at the distance of about 300 yards, steering W. $\frac{1}{4}$ S., which will lead clear of Wall shoal and through the entrance between Wall and Tilcey islands, into the harbor. There is no danger in the channel. Three small rocks above water will be seen close off the inner or west point of Wall island, but they are quite bold, as are the shores on either side. The best anchorage is off the mouth of a small bay of the mainland, in which a wharf and flag-staff, at the principal fishing establishment, will be seen. The bearings and distances which have been given, together with the very remarkable Blackhill island, will sufficiently point out the position of this harbor to strangers. St. Charles harbor is very easy of access.

Water may be obtained from the mainland, and wood from St. Charles bay.

Several banks, among which are Henry and Coles banks, Saunders knob, and Shoal ground, lie southward of cape St. Charles and in the entrance to Niger sound, but none are dangerous.

Niger sound runs 6 miles W. by N., with deep water, often exceeding 30 fathoms, and free from off-lying dangers. Its entrance is between Cape St. Charles and Camp islands, and at the distance of $2\frac{1}{2}$ miles within it, will be seen Big Duck island, 840 feet high, about $2\frac{1}{2}$ miles in circumference, and nearer to the northern than to the southern side of the sound. Little Duck island, much smaller and lower, lies 600 yards southward of Niger island, and has shoal water off it, 200 yards to the northwest and north. The channel between these islands is unsafe, but to the northward and southward of both islands the channels are free from all danger.

Duck island bank, with $5\frac{1}{2}$ fathoms water on it, bears NE. 200 yards from Little Duck island. Shoal water extends from both east and west extremes of that island, and a bar (the least depth on which is 4 fathoms water) connects the west extreme with Big Duck island.

• **Two shoals**, with $4\frac{1}{2}$ and $4\frac{1}{2}$ fathoms water on them respectively, lie in the channel north of Big Duck island, leaving a narrow passage on each side in the western entrance to Islet bay.

Good anchorage will be found in Horn bay, at the head of the sound; and also in Islet bay, to the northward of Big Duck island.

Wood and water may be had in abundance. No directions are necessary, since there are no dangers, and the high and steep shores are everywhere quite bold. There are here and there rocks off the points, but they all show and are close to the shores.

Morgan shoal—This danger extends 200 yards nearly from the point of the mainland northward of Chimney tickle.

Deer island, nearly round, about 300 feet high, and three-quarters of a mile in diameter, lies close off the southwest point of Niger sound, so as to leave only a boat channel, called Chimney tickle, between, where there are fishing huts and stages; as there are also in a small cove of the mainland half a mile to the westward, where the anchorage is good, and frequented by many vessels during the fishing season.

Main tickle bank, with 6 fathoms water over it, is situated in the middle of the northern entrance to Main tickle, the channel between Camp and Deer islands.

Camp islands, nearly $1\frac{1}{2}$ miles long west and east, and three-quarters of a mile broad, are not quite so high as Deer island, and are also of bare granite. They are several islands, close together and there is a small cove on their southwest side, where fishing schooners moor to the rocks, with very indifferent shelter from south winds. There is excellent shelter for the boats of the fishermen, whose huts and stages will be seen on the shores. The channel between the Camp islands and Deer island is 400 yards wide, and free from danger. There are three small islets in the bay next southwestward of these islands. Off the outermost of these islets there is a rock awash, lying 340 yards to the eastward.

Romsey rock, with 9 feet water on it, is situated WSW. $\frac{3}{4}$ W. 350 yards from the south extreme of the middle island of Camp islands. Big Duck island, west extreme, seen open westward of Camp islands, bearing NW. $\frac{1}{2}$ W., leads west of this rock.

The Horns, a bank with 5 fathoms water over it, bears E. $\frac{1}{2}$ S. 950 yards from the south extreme of Deer island.

Red island bank, with 7 fathoms water over it, is situated NE. by E. $\frac{3}{4}$ E. 1,200 yards from Red island.

Table head, which bears SSW. $\frac{1}{4}$ W. 5 miles from the east extreme of the Camp islands, is very remarkable, being an isolated mass of basaltic columns upon sandstone, flat at top and precipitous all round, the summit of which is 200 feet above the sea. Truck island lies close to the northeast side of this point, affording no shelter; and White Mica cove, 1 mile farther to the northward, is only fit for boats.

St. Peter islands are a scattered cluster of small and low islets, with many rocks above and under water between them. They are cliffy and

black, being for the most part composed of basalt and amygdaloid. The most eastern of them have been named the Petrel islands, because these birds breed upon them. Shoal water does not extend off any of these islands to seaward beyond the distance of 400 yards. The easternmost of them lies $1\frac{1}{2}$ miles to the southward and the southwesternmost islet of the St. Peter group 3 miles S. by W. $\frac{1}{4}$ W. from Table head.

St. Peter bay is within these islets and on the southwest side of Table head. It is completely open to the southeast, but the islets and reefs form a breakwater from the sea. Peter point, the south extreme, bears NW. $\frac{3}{4}$ W. 2 miles from the southwestern St. Peter island. The bay is 2 miles deep in a NW. by W. direction, and there is anchorage three-quarters of a mile from its head, in from 13 to 20 fathoms, sand, but there are not more than 6 or 7 fathoms in the entrance between Peter point and the innermost islet. This entrance is three-quarters of a mile wide, but has a shoal, with 12 feet water on it, abo. 100 yards off to the southwestward of the islet; and there is also a reef off Peter point 340 yards to the southeast. The passage between these dangers is about 800 yards wide, and must be approached from the southward, passing to the westward of all the St. Peter islands, and giving them a berth of not less than a quarter of a mile. The anchorage in this bay is, however, very indifferent, although it may be useful in case of necessity. Both wood and water may be obtained there. The hills at the head of the bay are 700 feet high, and extend from in rear of Peter point southwestward to Chateau.

Sandwich point.—Chateau point, the south extreme of Castle island, bears SW. $\frac{1}{4}$ W. $6\frac{1}{2}$ miles from the southwesternmost St. Peter island. Nearly half way between them is Sandwich point and cove, the latter useful only to boats. Between Sandwich point and Seal point, the east point of Chateau bay, is Bad bay, which is rocky and dangerous, affording no shelter to vessels.

Henney shoal and Castle ledge are two 3-fathom patches on which the sea often breaks. The former lies southeastward, and is distant 750 yards from Seal island; Castle ledge lies off the east extreme of Castle island, at 300 yards to the SSE.

Chateau bay will be easily recognized from seaward by its position with reference to the remarkable Table head, and St. Peter islands; by the high land in rear of it; and by there being a straight and unbroken coast, free from islands, to the southwestward of it; but more especially by the two wall-sided and flat-topped hills, composed of basaltic columns, which cap the summits of Castle and Henley islands, and are 200 feet in height above the sea. This bay has within it Henley, Antelope, and Pitts harbors; the two latter of which are quite secure, and fit for the largest vessels. Castle and Henley islands shelter these harbors from

the eastward; as do Whale island and York point from the southward and westward. Castle island is the outermost, and Chateau point, its south extreme, forms the extreme point of land on this part of the coast. There is a narrow channel between Castle and Henley islands, and also between the latter and the main leading into Henley and Antelope harbors from the eastward; but they are only fit for small vessels. The main entrance to Chateau bay is between Chateau and York points, the latter bearing from the former WSW. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles. Within this entrance, at the distance of $1\frac{1}{2}$ miles to the northward, lies Whale island in the entrance of Temple bay.

Pitts hill, on the west side of Pitts harbor, is 586 feet above the sea; and there is another hill, named Beacon hill, to the northwestward of it, 725 feet high. But the highest land is a ridge in rear of, or to the west of York point, the summit of which, called the High Beacon, is elevated 959 feet above the sea at high water. York point is quite bold, and so is Chateau point to the westward, but has shoal water extending E. from it distant 100 yards.

Tides.—It is high water, full and change, in Chateau bay at 7h. 35m. Springs rise $3\frac{1}{2}$ feet and neaps 1 foot.

Henley harbor is only fit for vessels, and is frequented by fishermen who have their huts and stages there. It is formed by Stage island, which is low and close to the southwestward of the basalt columns on Henley island. Vessels may enter this harbor either from the eastward, through the narrow channel between Castle and Henley islands, or from the southwestward, along the inner or west side of Castle island. The harbor is only about a quarter of a mile long and 200 yards wide, and carries a depth of from 4 to 6 fathoms; some swell rolls in with southwest winds. The only navigable entrance to the harbor faces SE. by S., in which direction are the basalt columns of Castle island.

Antelope harbor is on the north side of Chateau bay, to the northwestward of Henley island, and between the latter and Barrier point, which, with its reef, separates it from Pitts harbor to the westward. The passage leading into both these harbors is between Stage and Henley islands to the eastward, and to the westward, Whale and Flat islands; the latter being small and nearly joined to the former.

Directions.—In running into Antelope harbor the following are the dangers to be avoided: Shoal water extends 300 yards off to the westward of Stage island, and 200 yards off to the eastward of the east extreme of Whale and Flat islands. Besides these there are three small ledges to be avoided, which are very dangerous to strangers unless the weather is clear, when they can be plainly seen from aloft. The **First ledge** and outermost of these, with 12 feet water, lies exactly in the line from the west extreme of Chateau point to the east extreme of Whale island; and with the south extreme of the Seal islands seen through

the narrow channel between Castle and Henley islands. The **Second ledge**, with 3 fathoms water, lies in the line from the south extreme of Flat island to the south extreme of the basalt columns on Henley island, and is distant 320 yards from the east side of Flat island. The **Third ledge** has only 9 feet water, and lies between the east extreme of Whale island and Black point, which is the west extreme of Henley island.

Black rock lies 100 yards off Black point, and is small and low, but always above water. There is no passage for vessels between this rock and the point; but the channel to the westward of the rock, and between it and the ledge last-mentioned, is 240 yards wide, and has from 6 to 9 fathoms water in it. There is also a channel, equally wide and nearly as deep, between the ledge and the shoal water off the east extreme of Whale island, but the former is the preferable channel, because Black rock, being quite bold, serves as an excellent guide.

In steering for the harbor, observe that Grenville point, on the north side of Antelope harbor, and about a third of a mile E. by S. of Barrier point, is of steep black rock, like Black point, and these two points in one form the leading mark for running in. A staff 25 feet high, surmounted by a cask, has been placed on Grenville point to distinguish it, but may at any time be displaced by a heavy gale of wind. Being then between Chateau and York points, bring these points in line, bearing N. $\frac{3}{4}$ E.; then run in upon that leading mark, looking out for the First ledge, and passing 100 yards to the westward of it, and about 1,200 yards from Chateau point. This course continued half a mile farther will lead between Flat and Stage islands and 250 yards to the eastward of Second ledge, off the east side of Flat island.

From this position Black rock will be easily seen, and a vessel must haul a little to the westward, but not more than will be sufficient to pass close to westward of it, and then round it to the northeastward into the harbor. The best position to anchor in is midway between Grenville point and the northern shore of Henley island, where the harbor is 600 yards wide, and the depth of water from 11 to 14 fathoms, over mud bottom. The vessel will then be in the line from Grenville point to the basaltic columns, and more than 400 yards distant from the small island in the narrow channel out to the eastward, between Henley island and the main; the gusts from the westward through Whale gut, and also from the south are at times very strong, and render it necessary to moor carefully.

Pitts harbor is superior to Antelope harbor, being more roomy and better sheltered. It is about a mile long, NW. and SE. from Barrier reef to its head, and from half to three-quarters of a mile wide. The depth of water is 18 fathoms in the center, decreasing gradually to 4 fathoms close to the shores on either side. The bottom is mud.

Directions.—Vessels intending to proceed to Pitts harbor should proceed as before directed, as far as Black rock; only that they need not pass so close to the rock, but may safely go as much as 100 yards to the westward of it. As soon as the rock bears NE. by E., steer WNW. $\frac{1}{4}$ W., or keep the southwest extreme of the basaltic columns of Henley island open to the southward of Black point, which will clear Barrier reef, leaving it to the northeastward. Continue to run with the leading mark on until the east extreme of Whale island, and the west extreme of Chateau point, in Castle island, appear to be in line, bearing SSE. $\frac{1}{4}$ E. Then steer NNW. $\frac{1}{4}$ W., or so as to run up the harbor with the last-named leading marks on, and the vessel will clear the shoal water extending about 120 yards off Pitts point, and may anchor anywhere, this fine harbor being capacious enough for a large fleet, and quite sheltered from all winds. Water may be had from a stream at the head of the harbor, and wood is also plentiful.

Under certain circumstances, such as scant westerly wind, it might be desirable to pass between Third ledge and Whale island, instead of between that ledge and Black rock. In that case proceed as before until the vessel arrives between Flat and Stage islands and is abreast of the Second ledge. Then alter course to NW. $\frac{1}{4}$ W., taking care not to approach the east side of Whale island nearer than 250 yards, or by the lead than 4 fathoms. Be also careful not to go too far off to the eastward, for fear of Third ledge, the position of which has been described. As soon, therefore, as the passage into Temple bay, through Whale gut, begins to open, haul to the westward until the leading marks (east extreme of Whale island, and west extreme of Chateau point, in Castle island) appear in line, then run into the harbor on these marks as before.

Temple bay runs in between high granitic hills rather more than $4\frac{1}{2}$ miles in a NW. direction, with very deep water and no good anchorage. Nevertheless, small fishing-vessels moor on the south side just within Temple pass, where, as also on the west side of Whale island, there are huts and fishing stages. Temple pass, the southern entrance to Temple bay, is only 160 yards wide with 4 fathoms water; it bears N. by W. $1\frac{1}{4}$ miles from York point. The other entrance, called Whale gut, is between Whale island and the point of the main which separates Pitts harbor from Temple bay; it is 400 yards wide, but shoals on either side contract the navigable channel to 100 yards, with a depth of 4 fathoms. Exactly half way between York point and Temple pass, and about 100 yards to the eastward of the line from the one to the other, there is a small ledge with 3 fathoms least water.

Belle-isle, lying off the coast just described, and directly off the Atlantic entrance of Belle-isle strait, is frequented by English and American fishermen. It is about $9\frac{1}{2}$ miles long in a NE. direction and 3 miles wide, including Lark island close to its northwest side. It is composed of a range of hills, bare of trees, and which rise to the height of

700 feet above the sea. These hills are principally of granite, alternating with clay and slate, and their steep sides dip into the sea in every part, except at the northeast extreme of the island, where two low points converge so as to form a narrow creek, named Blackjoke cove, which shelters very small fishing vessels during the finest months of summer. Shelter may also be obtained in Lark harbor, under Lark island, and in Valley cove at $2\frac{1}{4}$ miles southward of the islet; but none of these coves are considered safe early in spring or late in autumn, because of the heavy swell which rolls into them from the eastward.

Lark harbor.—The anchorage called Lark harbor, between Lark isle and Belle-isle, is only 400 yards wide, with deep water, indifferent holding ground, and much exposed to northeasterly winds, but as it possesses the advantage of two entrances, vessels are allowed a speedy and safe passage to sea.

Blackjoke cove, at the northeast end of the island, is not more than 150 feet wide, with 12 feet water. It is formed inside an islet joined to the island at low water, and will only afford secure shelter to one or two small vessels moored head and stern; but in heavy gales from the eastward, especially at high-water springs, the breaking seas dash with such violence over the ledge of rocks, and make it so unsafe, that the Newfoundland Government granted \$1,500 for the construction of a break-water, which was completed in the summer of 1858, but being of insufficient weight and strength, the whole of the material was swept into the cove.

In Valley cove vessels may find fair anchorage and shelter during easterly winds. The bottom is sand, and in the line of the points the soundings are 17 fathoms, decreasing gradually to the shore.

The south side of Belle-isle affords no anchorage, and there is hardly a creek where a boat might find shelter.

The bottom around the island is, on the northwest side, sand and rock, but on the south always rock. The water is deepest on the south side; at the distance of 2 miles the depth is 60 fathoms, and the same depth, rock, is found at only $1\frac{1}{2}$ miles from Northeast ledge.

The south extreme of Belle-isle bears SSE. $\frac{1}{2}$ E. 19 miles from York point, and N. $\frac{3}{4}$ E. nearly 14 miles from cape Bauld, on Kirpon island at the northeast extreme of Newfoundland. Between Belle-isle and cape Bauld the deepest water is 50 fathoms, which is found near the island, but there is a middle bank of rock, sand, and shells of 30 fathoms. In the direction of cape Norman the soundings are comparatively shoal, from 22 to 30 fathoms, sand and shells. The narrowest part of the channel between Belle-isle and the coast of Labrador is between Lark island and St. Peter islands, which are distant from each other nearly 12 miles; the depth increases gradually from either shore until it reaches 90 fathoms, mud. A small rocky bank, with 5 fathoms least water, is reported

to exist about 5 miles NNW. $\frac{1}{2}$ W. from the northeast extreme of Lark island.

Lights.—The light-house erected on the southwest point of Belle-isle is a circular tower, 62 feet high, faced with white boards. It exhibits, at an elevation of 470 feet above the sea, and between the bearings about WNW. $\frac{1}{4}$ W. round by south to NE. $\frac{3}{4}$ E. a *fixed* white light of the first order, which is visible in clear weather from a distance of 28 miles. It is lighted from sunset to sunrise from the 1st of April to the 20th of December of each year.

In consequence of the old light, from its great height, being frequently obscured by fog, a light is exhibited from a light-house erected about 300 feet below the old light-house. The light is fixed white, elevated 128 feet above high water, and should be visible in clear weather from a distance of 17 miles in all directions, when not intercepted by the high land of the island to the northward. The light-house, 31 feet high, square, and constructed of wood, is painted white.

Fog signal.—A gun is fired from the upper light-house every $\frac{1}{2}$ hour during fog or snow-storms. There is a depot of provisions here for ship-wrecked mariners.

Northeast ledge dries at low water springs, and lies $1\frac{1}{2}$ miles ENE. from the northeast point of Belle-isle; there is deep water in the channel between.

Reported shoal.—In October, 1881, Mr. H. C. Williams, master of the steam vessel Ontario, reported the existence of a detached sunken danger, situated about one mile W. $\frac{3}{4}$ N. of the extreme west point of Belle Isle. The sea, he observed, broke furiously over the shoal, with a clear space between it and the shore. The extent of the shoal was estimated at 150 feet and very near the surface of the water. The position given is only approximate, as no opportunity offered of ascertaining its correct position.

Strait of Belle isle.—The entrance of the strait of Belle isle, between York point and cape Bauld, is 26 miles wide; the latter point bearing from the former SE. $\frac{1}{4}$ S. At cape Norman, 18 miles to the westward of cape Bauld, the opposite coast of Labrador is distant only 14 miles; but the narrowest part of the strait is at Amour point, in Forteau bay, where it is only $9\frac{1}{4}$ miles wide. The western entrance of the strait, between Greenly island and Férolle point, is nearly 21 miles wide, the point bearing from the island S. by E. The course and distance through the strait is S. 54° W. 65 miles.

Steep granitic shores extend from York point southwestward to cape Diable, where sandstone lying on granite commences and continues to Grand point, at the western entrance of the strait, occasionally forming magnificent cliffs several hundred feet in height.

Outer soundings.—During summer and autumn the route from Europe to Quebec through Belle isle strait is much frequented by steam vessels and the bank of soundings lying ENE. $\frac{3}{4}$ E., distant 28 miles from the north point of Belle isle, affords a valuable means of ascertaining the position of a vessel in foggy weather when approaching from the eastward.

The least water as yet found on this bank is 86 fathoms, mud, with 105 to 121 fathoms, sand, between it and the bank which stretches to the northeastward off Belle isle.

The soundings in the strait of Belle isle are not so irregular but that they will afford assistance to a vessel at night or during the fogs which so frequently prevail. The deepest water is on the Labrador side, as, for instance, from York point to Red bay, where, however, it is interrupted by the shallow water off Wreck bay. It is also very deep on that side from Black bay to Forteau bay inclusive. But the line of deep water is not direct nor continuous through the strait, and it is still more perplexing, that there is as deep water within 2 miles of the dangerous Flower ledges, on the Newfoundland side, opposite Forteau bay, as in any part of the strait. The depth of water varies in different parts from between 60 and 70 to 20 fathoms, and the nature of the bottom is as various as the depths, being sometimes of rock, and at others of sand, broken shells, pieces of coral, or gravel.

Tides and currents.—Near the shores on either side of the strait of Belle isle there is usually a regular alternation of flood and ebb in fine weather, but it is not constant.

The flood comes from the northward along the coast of Labrador, and also from the southeast, from cape Bauld to cape Norman. The latter stream, there is reason to believe, is often turned off to the northward by cape Norman, and the same thing takes place at Green island, on the Newfoundland side, towards Greenly island, on the opposite of the strait. There is moreover, at times, a stream running from the southwest for several days together along the west coast of Newfoundland. This stream occasionally sets from Férolle point obliquely across the strait towards Forteau bay. Sometimes, and especially with northeast winds, the current runs directly in an opposite direction along the west coast of Newfoundland from Férolle point past Rich point. In short, there is no constancy either in the rate or set of these streams, for the winds and the irregular tides modify the set and rate of the equally irregular currents in a manner which it is extremely difficult, if not impossible, to calculate upon with any degree of certainty. The prevalent current from the northward comes from between Belle isle and the coast of Labrador. It is often at the temperature of freezing point, bringing many icebergs into the strait, and frequently carrying them through it many miles up the gulf of St. Lawrence. Some of these icebergs ground in deep water, whilst others are continually changing their positions.

They are much more numerous in some seasons than in others. Two hundred icebergs and large pieces of ice were counted in the strait in the month of August in one year, whilst there were not above half a dozen to be seen in the same month of the following season.

This current has been observed from the northward and eastward, assisted by the northeast wind, running full 2 miles an hour, whilst at other times it was almost insensible. It is even reported that there is sometimes a current in the opposite direction, and this report of the fishermen is probably correct, especially during ebb tide, and when southwest winds prevail in the gulf of St. Lawrence. At the same time that this current is running to the southward and westward there is occasionally a stream of warmer water running out to the eastward, on the Newfoundland side, especially during ebb tide.

Navigation of the strait in fogs.—From these remarks it will plainly appear that the navigation of the strait of Belle isle is attended with great danger in dark or foggy nights, during which no vessel should attempt to run through. On such occasions, therefore, it would be prudent to anchor in one of the bays on the north side of the strait rather than to continue under way.

A sailing vessel bound in to the gulf of St. Lawrence, and running with an easterly wind, will, however, find no place fit for that purpose until arriving at the indifferent anchorage of Black bay, for Red bay cannot be entered by a large vessel with an easterly wind.

Loup bay is the first good anchorage under such circumstances, and there the vessel would be so far advanced in her passage through the strait that it would not be worth while to stop, since everything might be easily cleared in the remaining short distance. But with a southwest wind, at the approach of night and appearance of fog, a vessel bound out through the strait to the eastward had better stand off and on under easy sail, tacking by the deep-sea lead from the Newfoundland side till morning, if not farther to the northeastward than Férolle point. If farther advanced, it would be better to make Forteau bay before dark, and anchor there for the night. In light winds or calms, during dark nights or foggy weather, it is better to bring up with a stream anchor anywhere in the strait rather than to drive about with the tides without knowing whither, but then a lookout must be kept for drifting icebergs. The lights exhibited on the south point of Belle isle and Amour point, and from which guns are fired in fogs and snow-storms, now greatly lessen the dangers of the navigation.

Fogs occur with all southerly and easterly winds, and they are frequent likewise with southwest wind; it is only when the wind is from between the north and west that clear weather can be safely reckoned upon.

Wreck bay.—Proceeding southwestward from York point, along the Labrador side of the strait of Belle-isle, the coast is straight and

bold to Wreck bay, which has a small river at its head, affords no shelter, and bears SW. $\frac{1}{2}$ W., $10\frac{1}{2}$ miles from York point.

Five-fathom patch.—SSE. $\frac{1}{4}$ E. $2\frac{1}{2}$ miles from the east point of Wreck bay lies a small patch of rocky ground with 5 fathoms least water. When on it the basaltic columns of Henley and Castle islands are just open to the eastward of York point; and Barge point, the next prominent point to the southwestward, bears WSW. $\frac{1}{4}$ W., distant 6 miles. The bottom can be plainly seen on this patch in fine weather; there is a heavy swell upon it in easterly gales, and frequently a great rippling; icebergs often ground upon it.

Barge bay, $4\frac{1}{2}$ miles to the southwestward of Wreck bay, will be recognized by a water-fall at its head. It affords no anchorage.

Greenish bay, about $5\frac{1}{2}$ miles SW. by W. $\frac{3}{4}$ W. from Barge bay, is about 2 miles wide at entrance, narrower within, and about 2 miles deep in a northwesterly direction. Small vessels occasionally anchor in it; but the ground is of sand, not very good for holding, and it is open to the wind and sea from the southeast.

Oil islet lies about $1\frac{1}{2}$ miles SW. $\frac{1}{4}$ S. from Greenish point, the west point of Greenish bay. It is a small, low, and bare rock about a quarter of a mile off shore, and its south extreme bears SW. by W. $6\frac{1}{2}$ miles from Barge point, the extreme of the land to the eastward.

Sunk ledge or Thistle rock.—Nearly $1\frac{1}{2}$ miles to the southwestward of Oil islet, and with its south extreme and Barge point in line, bearing NE. by E. $\frac{1}{2}$ E., lies Sunk ledge, a small patch of rocks awash at low water, on which the sea usually breaks. The rocks bear E. distant about 1,200 yards from Twin island, which lies close to the east point of Red bay.

Red bay is a good but small harbor, quite sheltered from every wind. It is formed by Saddle island, lying off the entrance of a bay of the main, and about a quarter of a mile W. from Twin island. Saddle island has a hill at each end, about 100 feet high, and is low in the middle. The hills of the main are close to the shore, and to the west of the island are of reddish granite, nearly 500 feet above the sea. There are also high and partially wooded hills at the head of the bay, but the east point of the latter is of moderate height and bare of trees.

To the southwestward of Saddle island, at the distance of three-quarters of a mile, is West bay, two-thirds of a mile deep, a third of a mile wide, and with tolerable anchorage in westerly winds, in 10 or 12 fathoms water, over sandy bottom; but it is exposed to easterly winds. The Outer harbor of Red bay is between Saddle island and Harbor isle, at the entrance of the Inner harbor; and the depth is from 6 to 9 fathoms, over mud bottom. The entrance of this harbor from the westward is about 200 yards wide, and the space to anchor in is 800 yards long

by 400 yards wide. Immediately to the north of this anchorage is the entrance to the Inner harbor, which is between Harbor isle and the mainland to the eastward, and 200 yards wide; but shoal water on either side diminishes the deep-water channel to about half that breadth. The depth that can be carried in is 7 fathoms. Within there is a capacious basin, nearly three-quarters of a mile in diameter, with 16 or 17 fathoms water in it, over muddy bottom, and where any number of vessels might safely winter, but shoal water extends 200 yards from the shore.

Water.—Three small rivulets enter this basin, where water and wood may be obtained at high water; and there is also a stream at the head of West bay.

Tides.—It is high water, full and change, in Red bay at 7h. 45m. Springs rise $3\frac{1}{2}$ feet, and neaps $1\frac{1}{2}$ feet.

Directions.—Red bay is easily entered with a leading wind, but nothing larger than a schooner of 150 tons burden can beat in or out. The dangers outside the harbor to be avoided are Sunk ledge, already mentioned, off Twin island; another small rocky shoal lying about 340 yards south of the east end of Saddle island; and a rock awash about 140 yards south from Peninsula point. Running for the harbor from the eastward, the first will be avoided by keeping Greenish point just open to the eastward of the bare islet to the westward of it, bearing about NE., till the southwest extreme of Saddle island bears WNW. Then steer W. for the entrance of the bay between Saddle island and the point of West bay, taking care not to go nearer to the former than a quarter of a mile, or by the lead than 11 or 10 fathoms.

As soon as the west end of Saddle island bears NW. $\frac{1}{4}$ W., steer for it, and round it to the eastward within 40 yards; but observe that farther in, that is, off the north point of the island, there is a reef running out about 150 yards to the northward, or towards Harbor isle. The channel between this reef and the shoal of large stones connecting Harbor isle with the mainland to the westward of it is only 200 yards. As soon as a vessel has passed through this entrance anchorage may be obtained, observing that there is shoal water all along the inner side of Saddle island, and to the distance of 140 yards. A vessel moored here will be quite secure from all winds; but if wishing to go into the Inner harbor, there will be no difficulty in doing so with the aid of the chart, or if a boat be first sent to examine the narrow entrance.

In approaching Red Bay from the westward there is no danger in the way, except a rock, awash, off Peninsula point, and which being so close to the shore, may be easily avoided. There is no entrance, excepting for boats, to the eastward of Saddle island.

The Louse is a rock with 5 fathoms water, situated SSE. $\frac{1}{2}$ E. half a mile from Peninsula point.

Belles Amours shoal, with 5 fathoms water, lies S. $\frac{1}{2}$ E. $1\frac{1}{2}$ miles from the same point.

Carrol cove, about $3\frac{1}{2}$ miles SW. from Red bay, is very small, with its entrance to the eastward. One or two fishing-vessels are occasionally secured in it, moored to the rocks, and there are huts and fishing stages on the shore.

Little St. Modest islands is the name given to two small, low, and bare islets, a mile apart, and close to the shore at the eastern point of Black bay. They afford no shelter to shipping, and Soldier shoal, a dangerous rock lies off them, awash at low water, and bearing ESE. $\frac{1}{4}$ E. half a mile from the west extreme of the western islet; and SW. $\frac{1}{4}$ W. not quite a mile from the south extreme of the eastern islet. This rock must be carefully avoided in approaching Black bay from the eastward.

The other and principal St. Modest island is a small bare islet close to the southwest point of Black bay. Within this islet fishing-vessels moor to the rocks on either side, but it is useless for larger vessels.

Black bay, at 11 miles to the southwestward of Red bay, is 3 miles wide across the mouth, from one St. Modest island to the other, and about 2 miles deep. There is tolerable anchorage in this bay in 10 fathoms water, over sand bottom, but it is open to southeast winds, which send in a heavy swell. There is, moreover, a rocky shoal on its west side, with 12 feet water, nearly one mile N. $\frac{3}{4}$ E. from the western St. Modest island, and SE. $\frac{3}{4}$ S. about half a mile from Ship head, a small rocky peninsula in the northwest part of the bay. There is a river at the head of Black bay which boats can enter at high water; and there is a fine sandy beach westward of it extending to the rocky peninsula just mentioned. The best anchorage is off the center of this beach.

Granite, which has formed the coast line from York point, ceases to do so at the west point of Black bay, being succeeded by sandstone. The granite, however, is seen occasionally at the water's edge under the sandstone at various points further westward.

Diable and Loup bays.—Diable bay is a small open bay 3 or 4 miles to the southwestward of Black bay. Loup bay, which is 3 miles farther, will be readily known by the magnificent cliffs of red sandstone at its east point, which are 300 or 400 feet high, and extend 2 or 3 miles to the northeastward of it. At the southwest point of Loup bay is Schooner cove, open to the eastward, but where, nevertheless, fishing vessels anchor in 7 fathoms water during the summer months. There is a fishing establishment and several houses at this cove.

Loup bay is $1\frac{1}{2}$ miles wide, and $1\frac{1}{2}$ miles deep, running in to the northwestward between high tablelands of sandstone, highest on the eastern side, where it terminates in the cliffs before mentioned. These tablelands are covered with green moss and grass. There is a fine sandy

beach, and a river, which small boats can enter at high water, at the head of the bay. Although this bay is quite open to the southward, yet vessels anchor here at all times during the summer months, the ground being extremely good. The best anchorage is in the north corner of the bay, in 10 fathoms, sand, about a quarter of a mile off shore, and with the entrance of the river bearing N. $\frac{3}{4}$ E. Shoal water extends about 600 yards from the east side of the bay. Vessels should anchor in not less than 10 fathoms water.

Forteau bay is about 4 miles westward of Loup bay, and separated from it by Amour point, which is of moderate height, and appears as the extreme point of land from the northeastward; it will be, moreover, recognized by the light-house erected on the point. The shores of the bay are of reddish sand or shingle. The west entrance point is low, but immediately within, the hill over it falls in small cliffs. Similar cliffs also line the shore close north of the light-house at Amour point.

This bay is 4 miles wide at the entrance between Amour point and Forteau point, and 2 $\frac{3}{4}$ miles deep, running in to the north between high and green table lands of sandstone, and having a fine sandy beach at its head, with a considerable and rapid river of the same name, abounding with salmon, and which boats can enter at high water. There is a fine fall of water on the west side of the bay, 1 $\frac{1}{2}$ miles within Forteau point, which will be readily seen by vessels, and serves to point out the bay to strangers. In dry seasons only a small stream is seen. This bay forms the best roadstead in the strait of Belle-isle, and Jersey vessels employed in the fisheries remain moored there all through the summer. It is quite open to the southward, but the winds from that quarter are never strong, or of long duration; and the opposite coast of Newfoundland is distant only 12 miles from the anchorage. Southwest winds roll in a heavy ground swell at times, which causes vessels to roll considerably, but brings no strain upon the cables.

Vessels may anchor anywhere at the head of the bay, in from 10 to 13 fathoms, over sandy bottom, good holding ground; but the best anchorage is in the northwest side of the bay, opposite the fishing establishments, a third of a mile off shore, and nearly half a mile within a spit of rock, with 10 to 12 feet water. Forteau point kept open clears this spit, which extends about 240 yards off from the western shore, and must be avoided when entering by not approaching nearer to the shore than a quarter of a mile, or than the depth of 10 fathoms till it is past. There are large Jersey fishing establishments on the west side of this bay. There is also an establishment in the northeast corner of the bay, and another at the entrance of the river. A wooden church, painted *white*, with a spire, and having a parsonage and school-house near, stands on the northeast side of the bay.

Light.—The light-house erected on Amour point, is a circular stone tower 109 feet high, faced with white brick. It exhibits at an elevation

of 155 feet above the sea, a *fixed* white light, which in clear weather is visible from a distance of 18 miles. It is lighted from the 1st of April to the 20th of December of each year.

Fog-signals.—A gun is fired every hour, when unable to see a mile from the light-house during fog and snow-storms. There is also a fog whistle near the light-house, which gives a blast of 10 seconds' duration every minute, with an interval of 50 seconds between blasts.

St. Clair bay, 4 miles W. of Forteau point, is small, open to the southward, and affords no anchorage. There is a very small and low islet and reef, which together extend about a quarter of a mile S. by W. from its east point.

Blanc Sablon bay lies 7 miles to the westward of Forteau point. There is a large Jersey fishing establishment on the shore of Blanc Sablon bay, the fishing vessels belonging to which lie moored during the summer in from 6 to 8 fathoms, sand. Although Wood and Greenly islands afford some shelter to this bay, it is quite exposed to westerly winds, which send in a heavy sea, and render it a wild and insecure anchorage, particularly in autumn, when vessels have occasionally been driven from their moorings and wrecked.

The bay is $1\frac{3}{4}$ miles wide by a mile deep, and there is a projecting point in the center on which the principal buildings stand. A sandy beach lies on either side of this point, and in rear of it rise high table-lands of sandstone. Close to the east side of the projecting point just mentioned, a reef of rocks extends 600 yards from the shore, and there is shoal water all round the head of the bay, to the distance of a quarter of a mile from the beach. Shoal ground, consisting of several rocky patches about 400 yards in extent, with $2\frac{3}{4}$ fathoms on it, and 4 to 6 fathoms around, lies on the following bearings:

East extreme of Wood island, S. $11^{\circ} 30'$ W., $1\frac{7}{10}$ miles; northwest extreme, Wood island, S. $53^{\circ} 30'$ W., $1\frac{1}{4}$ miles.

The best anchorage in Blanc Sablon bay is in the northwest part, the deepest water being on the Wood island side. The bottom can be clearly seen at the depth of five fathoms.

Tides.—It is high water, full and change, in Blanc Sablon bay at 8h. 45 m. Springs rise 4 feet and neaps 2 feet. The flood stream has been observed to run west, with a velocity of $2\frac{1}{2}$ knots at the anchorage.

Grand Point, at the western entrance of the strait of Belle-isle, and from which the land trends northward towards Bradore, is $2\frac{3}{4}$ miles to the westward of Blanc Sablon bay. A dangerous reef of rocks extends 700 yards to the southward and westward of Grand point; and rocks, above and under water, line the shore for $1\frac{1}{2}$ miles to the eastward of this reef, extending off shore to the distance of a quarter mile in some places. Half a mile to the eastward of the point, there is a small and narrow

cove, named Gulch cove, by the American fishermen who frequent it. This cove is sheltered by rocks off its mouth, and has 9 feet in it at low water. The cove is formed by two low and smooth granite spits extending from under the sandstone, and appearing like sand spits from a distance. It is so narrow that there is not room for even the smallest schooner to turn in it, hence vessels must be warped out stern foremost. They lay lashed together, and to the rocks on either side, as alongside a wharf.

Wood island—of sandstone, much lower than the main, and covered with moss and coarse grass—lies directly opposite Blanc Sablon bay. Its north extreme is about half a mile from the mainland, and the island is $1\frac{3}{4}$ miles long, NW. and SE., nearly a mile wide at its southeast extreme, which is the broadest part. The southeast point of Wood island bears SW. by W. $\frac{3}{4}$ W., nearly $7\frac{1}{2}$ miles from Forteau point. A reef runs off the west side of this island to the distance of about a quarter of a mile, but shoal water does not in any other part, extend farther than 200 yards.

Greenly island—low, bare of trees, composed of sandstone, and nearly two-thirds of a mile in diameter—lies $1\frac{1}{2}$ miles westward of Wood island, and $1\frac{1}{2}$ miles SSE. from Grand point. There is a patch of rocks lying about 400 yards off its south point, and shoal water extends about half that distance to the westward.

There is a channel between Wood and Greenly islands, and also between them and the main, but neither should be attempted by vessels drawing more than 15 feet water, as the bottom is very irregular, and several shoals, with 3 fathoms water, are reported. Fishing vessels occasionally anchor in 5 fathoms, off the mouth of the cove, on the east side of Greenly island; but the sea rolls round the island with southwest gales, and the holding ground is loose, and not to be trusted. Neither is the anchorage good under Wood island, although vessels occasionally bring up off the fishing establishments on its east side.

Light.—A revolving *red* and *white* light is exhibited from a lighthouse on the southwest side of Greenly island. The light shows white one-half minute, red one-half minute, white one-half minute, and is eclipsed $1\frac{1}{2}$ minutes, during each revolution of 3 minutes.

The light is elevated 100 feet above high-water mark, and in clear weather should be seen 15 miles from all points of approach.

The building is of wood, painted fawn color, and consists of an octagonal tower, 78 feet high from ground to vane of lantern, with keeper's dwelling attached.

Position: Latitude $51^{\circ} 22' 35''$ N., longitude $57^{\circ} 10' 50''$ W.

Tides.—The flood stream and westerly current combined occasionally run very strongly round the north point of Wood island; and when this stream encounters a heavy swell from the westward, it causes a high sea, dangerous to boats.

Fisheries.—Wood island was formerly covered with trees, but they have been all cut down by fishermen, who now often go to Newfoundland to obtain wood for fishing stages, &c. There are two large fishing establishments on Wood island, which, together with that at Blanc Sablon bay, belong to Jersey merchants. The seal fishery is prosecuted, as well as that of codfish; herrings are also taken. The fishing vessels arrive in the beginning of June, and are frequently for many days drifting about in the ice before they can approach their stations, sometimes in great peril and occasionally wrecked. The vessels remain till October, when ice begins to form, and snowstorms are dangerous. Every one leaves in autumn except a few men at each fishing post who take care of the buildings, and are in readiness to capture seals in the spring. Numerous dogs, mostly of the Esquimaux breed, crossed with the Newfoundland dog, are kept for the purpose of drawing sledges during winter.

Ice.—In 1833, the channel between Wood island and the main was again frozen across on the 28th of June, after the winter ice had broken up. Packed ice remained till the middle of July, and numerous icebergs all the year.

CHAPTER X.

NORTHEAST COAST OF LABRADOR. — GENERAL DESCRIPTION. — CLIMATE. — ICE. — WINDS. — FOG. — CURRENTS. — LANDFALLS. — FISHERY. — WITH THE COAST FROM CAPE ST. LEWIS TO KÔKSOAK RIVER.

The northeast coast of Labrador is barren and rugged in the extreme, composed of Laurentian gneiss, with intrusive granite and many quartz veins. The hills fall steeply to the sea, often in steep cliffs, almost always with rugged rocky points, the single remarkable exception being the Strand on each side of cape Porcupine, the only sandy beach of any extent on the whole coast as far as Nain.

The nominal jurisdiction of the Newfoundland government extends from Blanc Sablon bay to cape Chidley, at the entrance of Hudson bay, but the actual control ceases at Holton harbor, the most northern settled Newfoundland fishing post, though the local mail steam vessel proceeds as far as Manak island.

North of Holton harbor the cod fishery is prosecuted from schooners that "follow the fish," as it is termed, sometimes as far as cape Chidley, though the vicinity of Nain is the usual northern limit.

At various places along the coast north of Battle harbor, Eskimo half-breeds have established themselves, but there is no large settlement of them till as far north as Cartwright harbor, where a great number are congregated about a post of the Northwest Company.

Another settlement in connection with the Hudson Bay Company is situated at Rigoulette, in Hamilton inlet.

The next native village to the northward is at Hopedale, the southern station of the Moravian missionaries, and from this to cape Chidley the natives, with a few exceptions, live at the Mission stations or at the posts of the Hudson Bay Company during the winter, and fish along the coast in summer.

The Moravian mission stations are Hopedale, Zoar, Nain, Okkak, Hebron, and Ramah, the headquarters being at Nain, where the superintendents, both of trade and mission work, reside.

The Indians from the interior come to the posts of the Hudson Bay Company in severe winters, but only when pressed by hunger, as a deadly feud exists between them and the Eskimo.

Climate.—The climate on the outer coast is rigorous in the extreme, so that vegetables are only raised with great difficulty, and rarely reach maturity; but at the heads of the deep inlets, vegetables, flowers, and even cereals are grown. Frost may occur at any time of the year, and snow was experienced in the neighborhood of Indian harbor in July,

August, and September of 1875. When the direction of the wind is from seaward the temperature falls considerably during the summer months. Large patches of snow, 5 or 6 feet deep, were lying in the valleys along the whole coast in the middle of July, 1875, and some of them had not disappeared when the first large fall of snow occurred in September. On the 16th August, 1880, snow fell within 200 feet of the sea level at Davis inlet; also within 1,000 feet of the same level at Nachvak on 23d August; and within 100 feet of Fort Chimo (Kôksoak river) on 6th September; the thermometer at the latter place between the 28th August and 8th September ranging between 38° and 45° Fahrenheit.

The mean temperature of the air for the coast between cape Porcupine and Nain was 46°·5 in July, 50°·3 in August, and 44°·5 in September, found by taking the mean of the highest and lowest temperatures observed each day.

Ice.—Field ice remains in the vicinity of Gready harbor until about the middle of July, soon after which the fishing fleet are enabled to sail northward. Ice was encountered off Ragged islands on 23d August, 1875, found close in to the land near Aillik bay on 24th August, and extended in all directions seaward as far as was visible from the summit of Kikkertaksoak island on 12th August, 1875. In the latitude of Nain the harbors occasionally freeze over in October and are frozen hard in November.

Icebergs may be encountered all the year round, but are most numerous from June till August, when, occasionally, they are found in immense numbers, consisting often of huge cubes, and not as a rule presenting the picturesque shapes they assume when seen farther south at a later date.

In the summer of 1880, at cape Harrigan, Paul island, and Hebron, the northern ice finally left the shore on the 31st of July, up to which day it was reported that Hebron was uninterruptedly blocked. It is also stated, on reliable authority, that the coast from Nain northward to Kôksoak river is seldom clear of field-ice before the last week in July, though the local ice may break up in the early part of June.

No field-ice was seen during the voyage of the *Labrador*, and Mr. Alexander Gray, master of the vessel, states that he has seldom seen field-ice in any large quantities during his previous voyages, which have all occurred during the same period of the year; but small icebergs were seen in this year at an average distance of 5 miles apart on the Labrador coast; while in Ungava bay not more than five or six were seen on the outward and homeward runs across the bay.

Winds.—The prevailing winds are from the westward, and consequently the sea is generally smooth during the navigable season; but when the direction of the wind is from the eastward it is preceded or followed by a heavy swell. Westerly winds generally lull at night, and

strong breezes from any direction rarely last more than 12 hours till September, when easterly gales occasionally continue for two or three days.

Thunder-storms occur near the end of August or during the early part of September, but warning is always given of their approach by heavy clouds in the western sky.

A curious feature of the weather experienced on this coast is known to fishermen as a "Northeast flurry." Strong breezes from NE. often come suddenly without any warning, lowering the temperature 5° or 10° , generally lasting only a short time, but occasionally being the prelude of an easterly wind and fog. On dark days, with light breezes, a good lookout should be kept to the northeastward for ripples on the sea or fog rising in that direction, which sometimes foretell the approach of these squalls.

Gales generally commence at NE., and veer gradually to SE., thence rapidly by south to west or NW., at which latter point they moderate. Occasionally they subside at the same point from which they began to blow.

Fogs are not so frequent on this coast as on that of Newfoundland. They prevail with winds from NE. round by east to south, but are unusual when the wind is from any other direction. The dry dense fog mentioned as prevailing with SW. wind is seldom seen when north of cape St. Lewis, where, when the wind is from that direction, the weather is clear, though a stream of thick fog may be observed issuing from the strait of Belle-isle as from a funnel.

Mirage.—During August the refraction and mirage off the coast of northern Labrador, and especially off Davis inlet, causes great difficulty in the attainment of correct sextant altitudes at sea. This state of the atmosphere is said to be the characteristic of the few fine days of summer.

Currents and tides.—The Arctic current passes along the outer portion of this coast at a rate varying from $1\frac{1}{2}$ knots an hour to a feeble stream; occasionally it ceases altogether, and sometimes an opposite current takes its place, so that icebergs are carried to the northward. This change takes place often without any apparent cause, though most frequently after southerly winds; the Arctic current reaches its maximum rate after northerly winds.

Near the shore, as a rule, the flood stream runs to the northward and ebb to the southward, following the line of coast, and rarely attaining a velocity of half a knot an hour.

In the vicinity of White Bear and Greedy islands a strong outset is experienced in the spring from Hamilton inlet.

Landfalls.—If bound to the southern portion of the Labrador coast, cape St. Michael is a good point to steer for, the land being high, the coast bold, and several harbors being situated in the neighborhood.

Wolf island is a good landmark, and the islands near it have each distinctive features, so that in the event of missing Wolf island there would be no difficulty in identifying the vessel's position. Cape Harrison is the best landfall north of Wolf island, and should be sighted if bound to the northward, to prevent the vessel being entangled in the labyrinth of islands and shoals situated north of it. It is a bold headland, there is no danger in the vicinity, and a safe harbor lies close to. The masters of the Moravian mission ships endeavor to sight Cape Aillik, but the Turnavik islands, and many off-lying dangers on that portion of the coast, involve great risk.

Inhabitants.—Eskimos are found living near the missionary establishments on the Labrador coast; to the northward of which the coast is sparsely inhabited, there being only seven families between Nachvak and Cape Chudleigh. There are at present no people but Eskimos living between Cape Chudleigh and Kôksoak, which coast is named by them Kungava, and the natives themselves Kungavâ-muit. Inter-course is kept up occasionally during the winter by means of dog sledges (locally known as romatiks) between Rigoulette, Hopedale, Davis inlet, Zoar, Nain, Okkak, Hebron, Ramah, and Nachvak; and Eskimos from Ungava occasionally go to Nachvak during the winter.

Mails.—Cape Harrigan harbor is the northernmost port to which the Newfoundland mail-steamer proceeds.

Trade.—The articles of trade at the Hudson Bay Company's posts consist chiefly of furs, cured deer-skins, seal and white porpoise oils, salted salmon, and salted trout.

Schooners sometimes follow the codfish as far as cape Chudleigh, though the vicinity of Nain is the usual northern limit of the fishery. Codfish are seldom found west of cape Chudleigh, nor caplin, in large quantities.

Fishery.—Cod fishery is prosecuted off this coast from July till October. About 30,000 people leave their homes on the east coast of Newfoundland and proceed in small craft to these shores, where some remain in the established posts, residing in wretched turf huts, while others follow the fish to the northward in their vessels. The fish caught at the settlements are cured there, and in many cases exported in English schooners direct to foreign markets. That caught from the vessels is cleaned and packed in salt, to be cured at one of the southern settlements or in Newfoundland. As far north as Aillik, the fish are caught with baited hooks, north of that they are jigged with two hooks fastened to a metal imitation of a caplin. The herring fishery begins in September, and is prosecuted principally from Size harbor, which is crowded with vessels at that time which hope to compensate for a bad cod fishery by a plentiful catch of herrings. These are packed in barrels and exported direct to Canadian markets by steam vessels owned in Newfoundland.

Character of the coast.—From the latitude of Davis islet to that of Nachvak the outer islands and coast-line appear to be singularly free from sunken rocks. But from Nachvak to cape Chudleigh the coast is fringed with small islets and sunken rocks to an estimated average distance of five miles.

The land about port Manvers attains a considerable elevation and is conspicuous from seaward. It is then low as far as cape Mugford, and thence to cape Chudleigh is high, with few exceptions, attaining its greatest elevation midway between Nachvak and cape Chudleigh, where the hills near the coast are estimated to be 5,000 or 6,000 feet high.

Cape St. Lewis, the north point of St. Lewis sound, is a bold headland, sloping steeply to seaward. A low black rock lies close to the cape, with deep water at 400 yards distance.

Deepwater creek, immediately north of cape St. Lewis is a narrow inlet nearly half a mile deep, with steep rocky sides, and a few houses at the head. Landing from boats may be effected, even in a heavy sea, at the fishing stages, alongside which there is deep water.

Petty harbor lies between Southern and Northern heads. The former, a mile north of Deepwater creek, slopes down from a bare hill 384 feet high, surmounted by a flag-staff, and a valley divides the point into two summits, ending in a cliff-faced cove 325 yards deep. Northern head is the cliff termination of a round hill 343 feet high, the spur of a higher range, surmounted by a large boulder, 408 feet above high water. The north part of this point is marked by conspicuous white stripes.

The entrance of the harbor is NW. $1\frac{1}{2}$ miles nearly from Southern head, on the north side of a peninsula 39 feet above high water, on which are some houses and a flag-staff. The passage into the harbor has a sharp bend round this peninsula, and should only be taken by a sailing vessel with a commanding breeze. It is 250 feet from shore to shore, and is still further narrowed by shoal water fringing the north shore and a rock with 9 feet water on it lying 150 feet off the south shore just within the narrows. The harbor then expands to an average width of a quarter of a mile and to a mile in length. The depth of water varies from 18 to 12 fathoms in the center, and the shores are bold-to, except on the north.

Rock.—A rock with 15 feet water on it, and 13 fathoms close-to, is situated 100 yards off the west point of Hogan cove, an indentation in the north shore.

Petty harbor affords good anchorage, being directly on the sea coast, is available as a refuge, and when necessity arises can always be entered by keeping in mid-channel till the harbor opens, and then hauling up close to the north shore till the rock off the south shore is passed.

Barren bay or Salmon bight, an open bay with a little shoal water at the head, runs in NW. $1\frac{1}{2}$ miles from Northern head.

Spear point, about N. $4\frac{1}{2}$ miles nearly from Cape St. Lewis, slopes gently from an elevation of 190 feet. Off the point and close-to is a rock that covers, but the point may be approached to 100 yards.

Spear harbor, west of Spear point, is entered from a bay between two islands. North island, 50 feet high, is steep-to on the south side, is shoal on the north, and a ledge projects 50 feet from the west extreme. West island, 52 feet above high water, has a reef stretching 150 feet from the west end. The east extreme of Western head shut in with the west side of North island, leads clear of this reef, but the shoal water can be seen easily and is steep-to.

To enter, keep North island close on board until the shoal water off West island is seen, when a course may be steered between the shoals. It would be advisable for a long vessel to send a boat to mark the extreme of that shoal, which can be rounded close-to. The two arms, branching west from the anchorage in $7\frac{1}{2}$ fathoms within the islands, are shallow.

A disadvantage of this harbor is that the indraught occasionally carries icebergs into the entrance, so as to completely block it until a westerly wind drives them out.

Several fishing banks lie off the harbor, but none are dangerous.

Little Spear harbor and Paul-Peters cove.—Between Barren bay and Spear harbor are Little Spear harbor and Paul-Peters cove, both open and wild.

Tinker bank, with 4 fathoms water, lies NN. $\frac{1}{2}$ W. half a mile from Spear point, and SE. by E. $\frac{1}{2}$ E. $\frac{1}{3}$ of a mile from American island. The summit of Jack Fling island WNW. $\frac{1}{2}$ W., open east of American island, leads 200 yards east of the shoal.

The coast from Spear point to Sealing bight is steep dark cliff, with a deep gorge, Davis gulch, that crosses Spear point in a N. $\frac{1}{2}$ W. direction.

American island, 67 feet high, is separated from this coast by a channel a little more than 200 yards wide, in which is a rock with 10 feet on it nearer American island than the mainland.

Jack Fling island, 99 feet high, is a conical gray island with the remains of a salmon-catcher's hut near the summit. It consists of two portions nearly joined, and a low black rock lies off the west extreme.

Jack Fling bank, with $6\frac{1}{2}$ fathoms water, lies NW. $\frac{1}{2}$ N. 350 yards from Jack Fling island.

Sealing bight, an open bay WNW. $1\frac{1}{2}$ miles from Spear point, is half a mile deep and 350 yards wide, and divides at the head in two

coves with shingle beaches. Within the islet at the mouth of the south cove the water is shoal, and there are some conspicuous white houses at the head. The water is deep, and a heavy sea in northerly gales prevents it being used as an anchorage, except with off-shore winds.

Mad Moll, with 6 feet water, lies in the middle of the entrance, and W. $\frac{3}{4}$ N. 400 yards from the north point of Jack Fling island. There are 9 fathoms close-to.

Fish, Herring-net, and High islands are situated off the north point of Sealing bight. High island is bluff, 131 feet above high water, and separated from that point by a clear channel 150 yards wide. There is no passage between this and the other islands.

The scab, a rock with 9 feet water, is the extreme of foul ground off Fish island, 300 yards W. by N. from the north point.

Murray harbor, an inlet $\frac{1}{2}$ mile deep and 300 yards wide, lies half a mile from Fish island. It contains good anchorage in 4 to 5 fathoms, gradually shoaling to the shores. Beyond the islet, $\frac{1}{3}$ of a mile within the entrance, the water is shoal.

The entrance is divided into two channels by Harbor island, about 100 feet above high water; the west passage is shoal.

A rock, with one foot water on it, lies S. by E. $\frac{1}{2}$ E. 80 yards from Harbor island, and is steep-to on the east side. Double islands, well open east of Harbor island, leads east of the rock.

To enter the harbor, the east point must be kept close on board, and the vessel anchored in mid-channel off the houses.

Salt Pond head, the west point of Murray harbor, dividing the latter from Sophia harbor, is bold and steep-to.

Sophia harbor extends S. $\frac{1}{2}$ W. $1\frac{1}{4}$ miles from Salt Pond head, where it takes a sudden turn to the eastward, and expands into Salt pond, a shallow basin nearly a mile long and half a mile wide. There are no dangers in mid-channel. Good shelter may be had in small vessels at the head, but large vessels should seek shelter only in Mecklenburg harbor.

Fergus head, forming the west side of Sophia harbor, is dark and bluff, terminating in a hillock 100 feet above high water.

Chapel island, half a mile north of Salt Pond head, has a deep channel on both sides of it, the west quite free from danger. It consists of two portions; the east a cliff-faced islet 60 feet high, and the west green and sloping, 112 feet above high water. Fishing boats often seek shelter in the channel between these two islands. The north and east sides of the island have deep water close-to. Shoal water extends 50 yards from the west point, and a short distance from the south point of the larger island. Chapel island rock, generally breaking, is situated between the south points of the two portions.

Soldier shoal, with 15 feet, is the shoalest part of a bank which lies N. by W. $\frac{1}{2}$ mile nearly from Salt Pond head, and NE. by E. $\frac{1}{2}$ E. half a mile from the south extreme of Chapel island. The shoal extends N. by E. a quarter of a mile, and falls suddenly to 19 fathoms.

Mosquito cove is a deep open cove, west of Sophia harbor, divided into two by Aaron island, 59 feet above high water.

Little harbor, WSW. $\frac{1}{2}$ W. a little more than a mile from Salt Pond head, affords snug shelter for small vessels. The entrance is only 300 feet wide, and the channel is still further narrowed to 200 feet by shoal water off the south shore; the banks then retrace, forming a basin one-third of a mile long with an average width of 200 yards and a depth of $2\frac{1}{2}$ fathoms, mud; there is good holding ground as far as an islet 5 feet above high water. Only $2\frac{3}{4}$ fathoms can be carried in, by keeping the north shore close on board.

The wall, a shoal with $3\frac{1}{2}$ fathoms water on it, and 6 to 7 fathoms close-to, is situated ENE. one-half mile from the entrance to Little harbor and SSW. one-third of a mile from the south extreme of Chapel island.

Salmon point, dividing Little harbor and Port Charlotte, is a steep point, sloping from a conical hill 157 feet above high water.

Port Charlotte, 2 miles in length, is entered by a narrow foul channel, that should not be attempted without a pilot, except in an emergency. It expands into a deep bay with good anchorage in 11 to 15 fathoms. Road island, 17 feet above high water, lies in the entrance, and is nearly joined to the west point by rocks and shoal water. Off the south side is a rock that covers, and a reef extends 400 yards from the west extreme in the line of the entrance. Shoals of 3 and $3\frac{1}{2}$ fathoms lie S. $\frac{1}{2}$ W. 200 yards from that reef, and a rock with 10 feet water, lies 100 yards off Level point, the first within the entrance on the east shore.

Bottom arm at the head is three-quarters of a mile deep. Anchorage may be had in it in $6\frac{1}{2}$ fathoms, mud, as far as the narrows, half a mile from the mouth of the arm. Shoal water extends from either shore of the narrows, but by keeping mid-channel, 4 fathoms water may be carried to the inner basin, where there is perfect shelter for small craft, and good holding ground in $7\frac{1}{2}$ fathoms.

Directions.—To enter Port Charlotte, keep the summit of Chapel island open north of Salmon point, and bearing NE. by E. $\frac{1}{2}$ E. until the north extreme of a shingle beach in Mecklenburg harbor is open west of Road island, when the low west point of Chapel island, bearing NE. by E. must be brought just open of Salmon point to clear the 3-fathom shoal; and when duck island, a small island near the shore, bears WNW. $\frac{1}{2}$ W., the vessel will be clear of the shoals, and may be hauled to the southward and anchored as convenient.

Burke island, 85 feet above high water, is on the east side of the bight. It is flat, has several houses on it, and is separated from Granby island by Shoal tickle, a narrow boat channel. West of this tickle are two flat rocks just above high water.

Flat islands, 3 feet above high water, lie in the center of the bight, and are shoal to the point off which they are situated.

A rock, awash at low water, lies 100 yards off Cogan cove at the south end, and is the only danger.

George tickle head is round and green, 119 feet above high water, and is the west entrance point of St. Francis harbor bight.

Anchorage may be had in this bight in 10 fathoms, mud, south of Flat islands, with good shelter from all winds, the mouth of the bight being nearly land-locked by Burke, Long, and Hare islands. The channel between George tickle head and Long island is clear.

Long island consists of two peaked hummocks, the northern 137 feet and the southern 101 feet above high water, joined together by a low neck of land, and separated from Hare island by a channel 100 feet wide at the south extreme.

Hare island, 356 feet high, is dark and flat-topped, with a cliffy shore, steep-to.

Red island, 67 feet above high water, is NNW. a little more than a mile from cape St. Francis. Rocks, that generally break, extend 200 yards from the southwest side.

Red island shoal, with $5\frac{1}{2}$ fathoms, breaking in heavy gales, is situated SSE. 300 yards from Red island.

Fishing-ship harbor is formed by the three Fishing-ship islands. The entrance is WNW. $\frac{1}{2}$ W. a mile from the north point of Hare island.

West island is bold and cliff-faced on the east side, but from the northwest point shoal water stretches 100 yards. The south shore slopes gradually to the sea, has foul ground off all the points, and should not be approached nearer than 200 yards. A shoal with 7 fathoms water lies SE. by E. $\frac{1}{3}$ of a mile from the islet, about 10 feet above high water, on the northwest extreme of West island. West tickle, separating West island from the mainland, is shallow.

Northwest arm is a good anchorage $\frac{3}{4}$ of a mile long and $\frac{1}{4}$ of a mile broad, between West island and the mainland. It is free from all but the following dangers, namely: A rock with 6 feet water off the entrance to West tickle, about 200 yards from the shore; and a rock, that covers one foot at high water, with shoal ground off it, 200 yards from the west shore near the head. The north point of West island should not be brought east of SE. to clear the first rock.

Anchorage may be had in 14 to 7 fathoms as convenient.

The channel between West and Middle islands is clear, and a vessel may stand close to the shores when beating, except off the north point of West island.

Hagan arm is a continuation of Northwest arm, through a channel 100 yards wide, with 10 feet in it at low water, and may be entered by keeping mid-channel. After passing the narrows the water deepens, but it should not be entered except with local knowledge.

East island consists of a series of hummocks, the summit near the east end is faced with cliff 329 feet above high water, and there is a sharp peak 163 feet high over northwest extreme.

It is separated from the mainland by a channel 125 yards wide, narrowed to 100 yards by an islet 3 feet above high water, with a sunken rock off it, and from Middle island by Boyeans tickle, a channel only 65 yards wide, and nearly blocked by shoal water at either end. There is a passage by keeping Middle island close on board, but it is rarely attempted even by local small craft, and should not be (except in distress) by a stranger. Just inside the tickle is a rock, 100 yards from East island.

The Bull, a rock that nearly always breaks, lies 135 yards off the southeast extreme; and **the Cow**, a rock that breaks only in a heavy sea, is situated off a deep cove on the north shore of East island, 135 yards from the nearest point,

Middle island is divided in two parts by a deep ravine, the north flat topped, 240 feet, the south 96 feet above high water. The coast line is rugged and deeply indented. From the points on the east side, shoal water extends 100 yards. The west side is bold-to, but off the south extreme a shoal, with 12 feet water, lies 65 yards distant.

Two flat islands, the north and higher 8 feet above high water, lie off the north side of this island, with shoal water between them and the shore. From the outer island, rocks with 15 and 6 feet water extend northwest and southwest 135 yards. There is deep water close to on the northeast side.

The mainland forming Fishing-ship harbor is rocky and barren. At the west end is a round hill 203 feet high, separated from the main body of the hills by a deep valley. From it a low spur slopes to the southward, terminating in rugged points. Off the east extreme is a round islet 4 feet above high water, north of which is a rock that covers. There are 5 fathoms close to the south extreme.

The east point has shoal water for 100 yards off the south part.

Directions.—To enter from the southward, the channel between Middle and West islands should be taken, and then mid-channel between the flat islets off Middle island and the round rock off the mainland. Round-

ing the former at 200 yards, anchorage may be had as convenient in 12 to $7\frac{1}{2}$ fathoms.

Bound through the north passage, the point of East island should be rounded at 200 yards, and then the mainland kept close on board, until the sunken rock off the northwest point of East island is passed.

Lance cove is a wild bight without shelter, $\frac{1}{3}$ of a mile deep, immediately north of Fishing-ship harbor.

Sloop cove head is the east point of this bight, and is bold-to. Off the north point is an islet 8 feet above high water.

The Chimney, a shoal, with 6 fathoms water on it, lies SE. by S. 300 yards from Sloop cove head.

Sloop cove is a small cove just west of the head of that name, and may be entered from the south by rounding Black rock, an islet close to the shore, and keeping the east shore on board. Only small vessels can go in, but they will find good shelter off the houses at the head. The west side of the entrance is formed by three low rocks.

Caplin bay, $\frac{1}{2}$ mile deep, lies north of Sloop cove head, and narrows to the westward, expanding again into a basin 350 yards long and 200 yards broad, where boats may find shelter at the head, and small craft in 9 feet at low water. In the narrows lies a rock, that may be avoided by keeping the north shore on board.

Pigeon island, 82 feet high, lies NNE. $\frac{3}{4}$ E. $\frac{1}{4}$ of a mile from Sloop cove head, and is the east point of Caplin bay. It is round and faced by cliffs, separated from the mainland by a channel 100 yards broad, in which are two rocks that break. Northwest of this island is a deep cove and Southwest bight, a wild and rugged bay in which the sea breaks heavily with an easterly swell.

Southern point (of Ship harbor) is an island about 40 feet above high water, nearly joined to a peninsula 60 feet high, that make as a double hummock, and is situated NNW. $\frac{1}{2}$ W. 2 miles nearly from East island.

Ship harbor extends west, a little more than $1\frac{3}{4}$ miles from Southern point, and narrows at $\frac{1}{10}$ of a mile distant to 200 yards nearly, after passing which the shores recede. The south shore is straight, and steep wooded slopes surmount it; the north shore has open coves at the base of hills intersected by deep ravines, sloping from ranges 700 feet in height.

Russel cove, the second on the north shore, is shallow, filled by large bowlders 200 yards from the beach. A rock which covers, lies 150 feet off the southeast point.

Anchorage may be obtained off this cove in 16 fathoms, mud, good holding ground. The head of the harbor is shoal for 200 yards.

Ship harbor head, N. by W. $\frac{1}{2}$ W. $5\frac{1}{2}$ miles from cape St. Francis, is a rugged promontory 520 feet above high water, faced by steep bluffs with red patches. It is steep-to on all sides. The coast between this head and Occasional harbor is remarkable from the deep ravines intersecting the promontory, and extending 200 yards inshore.

Good cove, the third from Ship harbor head, round a low point, is the only place where landing can be effected in ordinary weather, or with even a light easterly swell.

Twin islands, N. by W. a mile from Ship harbor head, are two in number, the eastern consisting of two conical grass-covered mounds about 60 feet high, from which the islands take their name; the western a black rock 32 feet above high water, separated by a narrow channel.

A rock, with 4 fathoms water, lies S. by E. $\frac{1}{2}$ E. $\frac{3}{4}$ of a mile from the south point of Twin islands; cape St. Michael open either side of these islands will lead clear of the rock.

A shoal, with $5\frac{1}{2}$ fathoms water, lies WNW. $\frac{1}{4}$ W. $\frac{1}{3}$ of a mile nearly from West Twin island.

Occasional harbor runs in southwest $5\frac{1}{2}$ miles from Twin islands. It is clear of danger, the water is deep for 3 miles from the entrance, with an average width of $\frac{1}{3}$ of a mile, and affords no anchorage; it then expands into Delaney cove on the south, French and Trout Coves on the north.

Delaney cove is a quarter of a mile deep, and is separated from the head of Ship harbor by a neck of land $\frac{1}{3}$ of a mile across. Rocks lie off the north point of this cove, close to the shore.

French and Trout coves are each $\frac{1}{4}$ of a mile deep, and vessels wishing to dry fish may haul close to the shore in either cove. The water is shoal close off the point dividing these coves.

West of Trout cove the harbor is narrowed to 300 yards by a projecting point from the north shore, with rocks 150 yards from it.

Arch cove, west of this point, is a secure anchorage 800 yards square, with 6 to 12 fathoms water.

Mercers island, 3 feet above high water, 800 yards from this point, marks the east limit of the shoal water, and west of the anchorage. Boats may proceed to the basin beyond. An islet 37 feet high lies beyond Mercers island.

Lazy bank, with $6\frac{1}{4}$ fathoms least water, is situated ENE. $\frac{1}{2}$ E. $\frac{1}{4}$ of a mile from the point between Arch and Trout coves. The water is deep north of it, but the bank runs along the shore to the southwest.

Anchorage may be had as soon as French cove is open, off the entrance to that cove; in Delaney cove in 10 fathoms, or anywhere in 14 to 11 fathoms after passing Trout cove point.

Water may be procured from many places along the shores, but the most convenient place is on the south shore opposite Arch cove. Firewood may be obtained in abundance.

Northern head, of Occasional harbor, a steep cliff, has a rock close-to, one foot above high water.

Hole-in-the-wall cove lies north of this head, and is $\frac{1}{4}$ of a mile deep, having a red cliff at the head with a cave in it.

Tides.—It is high water, full and change, in Occasional harbor at 6h. 48m. Springs rise 5 feet and neaps $3\frac{1}{2}$ feet.

St. Michael bay.—**Cape St. Michael** is the turning point to St. Michael bay, NW. $\frac{1}{2}$ N. $1\frac{1}{2}$ miles from Twin islands. The coast is steep and bold-to, the extremities are Hole-in-the wall, a remarkable ridge with a hole through, and Main cape that terminates in a low peninsula.

Main cape bank, with 6 fathoms water, lies NE. $\frac{1}{4}$ N. half a mile from Main cape.

False cape, half a mile northwest of Main cape, is the north side of Cape cove, 800 yards deep, open and wild, with a deep valley at the head. A small rock lies off the extreme of False cape, and it is bold-to.

False cape bank, with 13 fathoms least water, lies N. by E. $\frac{1}{2}$ E. three-quarters of a mile from False cape.

First point, WNW. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles from False cape, is a low point sloping gradually from wooded hills. Between these points are deep coves; that nearest False cape being called Island cove, from a white islet 65 feet above high water in the entrance. It is 350 yards deep, shoal within the island, and affords indifferent shelter for boats.

Salmon bank, with $7\frac{1}{2}$ fathoms water, lies NE. $\frac{3}{4}$ E. three-fourths of a mile from First point.

Scrammy bay, much resorted to for drying fish, is west of First point. Pinsent island, 67 feet above high water, lies off it, and shelters the bay partially, but not from a northeast gale. Vessels generally anchor south of this island and east of Scrammy island, between Pinsent island and the mainland.

Lazy bank, with $5\frac{1}{2}$ fathoms water, is situated N. by E. $\frac{1}{2}$ E. 350 yards from Pinsent island.

Pinsent rock, 2 feet above high water, NW. by W. 300 yards from Pinsent island, is bold-to on the north side.

Hussy rock, with 10 feet water, is E. $\frac{1}{2}$ S. 200 yards from Pinsent rock.

Lump rock, awash at low water, is 800 yards SW. of Pinsent rock, and 200 yards off shore. It forms the east point of George cove, that affords good shelter for boats with no danger in it except close to the shore. Lump rock may be approached to within 200 yards.

Pinsent arm is 2 miles from Pinsent rock. The bay outside the narrows is clear, the south shore sloping from mossy hills, backed by the highest range on the south part of the Labrador coast, the summit of which is a boulder 895 feet above high water. The north shore ends in an islet 35 feet and a peninsula 56 feet above high water. The narrows are between two hillocks, the north 58 feet and the south 46 feet above high water. At the summit of the north hillock is a flagstaff, at the base a conspicuous white house, and off it are two low islets. Off the south hillock is a rock that covers 3 feet, narrowing the entrance to 100 yards. All the channel is foul, and no vessel should attempt it without a pilot, but good anchorage for a small craft may be had in $5\frac{1}{2}$ to $7\frac{1}{2}$ fathoms, sand, near the north shore just within the houses.

Long island, 192 feet above high water, and $1\frac{1}{4}$ miles from First point, makes as a cone from the southward, but from the westward as two hummocks, the south 106 feet above high water. At the north end, joined at low water, is an islet, off which are a rock that covers at half tide 250 yards NW. $\frac{1}{2}$ N., a bank with $5\frac{1}{2}$ fathoms NW. $\frac{1}{4}$ mile, and a shoal with 12 feet water ESE. $\frac{1}{4}$ E. 200 yards distant. The south shore may be approached to within 100 yards.

Anchorage in $8\frac{1}{2}$ to 12 fathoms may be had on a bank that extends one-quarter mile off the east cove on the south shore of this island. The holding-ground is said to be good, though the bottom is of coral and rock.

Fox island, 66 feet above high water, is nearly joined by rocks to the northwest point of Long island.

Pigeon island, 22 feet above high water, is situated N. by W. $\frac{1}{4}$ W. $\frac{3}{4}$ of a mile from the southeast end of Long island.

A bank, with two shoal parts of 12 and 16 feet, lies W. one-third of a mile nearly from Pigeon island. There are 10 fathoms close to on all sides. False cape SE. by E. $\frac{3}{4}$ E. open north of Pigeon island, lead east of these shoals.

Pigeon island rock, with 7 feet water, is an isolated shoal, steep-to, SE. by E. $\frac{1}{2}$ E. 400 yards from Pigeon island.

Burnt island, 173 feet high, joined at low water to the southwest point of Square island, is separated from Pigeon island by a clear channel 750 yards wide. Comprised between it and Square island is a bay with a small islet in it, off which shoal water extends south 150 yards

St. Michael bay runs in a northwesterly direction 15 miles from Burnt island, and the fishermen say there is only one narrow navigable channel to the head, so encumbered by rocks and shoals is the passage. Vessels should not attempt to enter it therefore, without an experienced pilot, who may be obtained during the summer months from Square island harbor, Pinsent arm, or Scrammy bay.

Square Island, dividing St. Michael bay into two parts, is bare, and surmounted by a double hill 497 feet above high water. The shores are bold and intersected by numerous ravines; the northeast point ends in Sugar-loaf, a truncated cone 221 feet high, and Gull island, 49 feet above high water. An islet, 7 feet above high water, is nearly joined to Gull island, and from it a reef extends 100 yards.

Snapper cove is a deep indentation west of Sugar-loaf. In it and close to the shore are Upper rock with $4\frac{1}{2}$ fathoms, and Northward rock, with 5 fathoms water, small and steep-to.

Square island harbor, a cove 400 yards deep at the south end of the island, is sheltered by East and West islands, and may be approached by three channels. The south channel is marked by Motion island, round and faced by cliffs, 30 feet above high water, and nearly joined to Square island by a low rock. The middle channel is between East and West islands, free from danger; and the north channel, between East and Square islands, is also clear. Harbor point, south of the harbor, has a rock close off it, and a rock that covers lies in the cove on the north side. Harbor rock, 11 feet high, is situated off the east point, and a bank with 5 fathoms water lies 130 yards from it. There is no anchorage for vessels in the harbor to swing clear, though one or two might anchor in 12 fathoms and moor to the shore, but they would have to leave before an easterly gale came on. It is convenient, however, for fishing craft and boats, as the water is deep to the shore.

Anchorage for vessels, with good shelter, may be had in the channel between East and West islands, near the west end in 15 fathoms, the only place available for large vessels.

West island, NW. $\frac{1}{2}$ N., 4 miles from Twin islands, is round in shape, the summit, a steep bluff 272 feet above high water, being immediately over the south end. A little shoal water lies close to the north shore of this island.

The Sisters, two small islets, lie 250 yards south of West island. The channel between is clear, but they should not be approached in the line of their length nearer than 200 yards.

Mad Moll, with 7 feet water, is a dangerous rock ESE. $\frac{1}{4}$ E. half a mile from the Sisters, and covers a space 100 yards square. It is steep-to on all sides. Twin islands, SSE. $\frac{3}{4}$ E., open east of cape St. Michael, leads east of Mad Moll, and shut in, SE. $\frac{1}{4}$ S., leads west of it.

Hampton bank, with 6 fathoms water, is situated E. by N. $1\frac{1}{2}$ miles from the Sisters. **Inner Hampton bank**, with 10 fathoms water, lies 300 yards SW. of it.

East island is separated from West island by a clear channel 300 yards wide, and is 200 yards from Square island. Through the north channel icebergs frequently drift in the summer, the water being very deep and the current in the direction of the channel. Joined to the south end of East island, 50 feet above high water, is a rocky hummock that makes as a third island, being connected only by a low neck of land. The shores of this island are steep-to.

The Ribs, two rocky patches with 12 feet least water, are situated E. by N., a little more than a mile from the northeast extreme of East island. A danger, called the Skerries, is reported in the neighborhood, but it is believed to be the other head of the Ribs. The surveying vessel *Gulnare* was out in a very heavy sea, and there were no breakers or signs of shoal water, but the Ribs were breaking heavily at the time. Several fishing banks lie north of the Ribs, but none are dangerous.

Ship harbor head, S., in line with Twin islands, leads well to the eastward of all shoals.

The north coast of Square island is rugged and deeply indented, surmounted by wooded summits 540 to 350 feet high, with barren slopes and wooded valleys.

White point is next west of Gull island. A rock, with 9 feet water, lies NE. 150 yards from it.

Nowlan harbor, $1\frac{1}{2}$ miles nearly to the westward of Gull island, is fit for small vessels, and available only at high water, when a depth of 8 feet may be carried in, but local knowledge is requisite, as the channel near the south shore is intricate. Several houses are situated on the shores of this harbor, and a deep valley extends inland to a chain of ponds.

Nowlan head, N. by E. $\frac{1}{2}$ E. $\frac{1}{3}$ of a mile from the entrance to the harbor, is the extreme of a conical hill 185 feet high, and is steep-to. Bar and Cashman coves, west of Nowlan head, afford no shelter; the former is clear of danger, but a rock, with 3 feet water, lies 50 yards off the north point of Cashman cove.

Red island, 15 feet high, and W. $\frac{1}{2}$ N. $1\frac{1}{2}$ miles from Gull island, is separated from Square island by a passage, clear in mid-channel, 135 yards wide. Foul ground extends a short distance from the north extreme.

Red island cove is entered SW. $\frac{1}{4}$ of a mile from Red island, and affords indifferent shelter for boats, as a considerable swell sets in after easterly breezes.

Schooner cove, westward of Red island cove, affords anchorage for two or three schooners, off a cove with a shingle beach on the south shore, and is free from danger.

Woody cove, W. a mile from Red island, is 150 yards deep, and the same in width, exposed to easterly winds, but affords good anchorage in $6\frac{1}{2}$ fathoms when westerly winds prevail.

Woody cove bank lies off the entrance to the cove. The shoalest part, with 13 feet water, lies W. $\frac{1}{2}$ N. $\frac{3}{4}$ of a mile from Red island, and $\frac{1}{2}$ of a mile from Woody cove point, east of the cove. Gull island, seen open east of Red island E. by S., leads east of this shoal.

Duck island, WNW. $\frac{1}{2}$ W., a little more than a mile from Red island, has two prominent hillocks, the eastern, conical, 67 feet high, and the western, about the same height, is square in outline. The east and south shores are clear, but from the west point rocks extend 200 yards.

Dead islands, separated by a clear channel a mile wide from the northeast side of Square island, are a large group about 2 miles long and the same broad, composed of two large and several smaller islands, inclosing between them a good anchorage.

West island, the largest, is $1\frac{3}{10}$ miles long and three-quarters of mile broad, formed of a series of hummocky hills covered with grass and scrub, the highest over the north end 247 feet high, and terminating in a sharp point to the southward. This point is the extreme of two peninsulas joined to each other by narrow low necks of land. The west shore is cliffy and steep-to, and the north shore is separated by a narrow channel from a group of bare islands off the entrance to White Bear arm. An islet, 16 feet high, lies in this channel, NW. $\frac{1}{2}$ N. 100 yards from which is a shoal with 13 feet water.

Vessels taking this passage should keep in mid-channel when entering, and pass close north of the islet, steering for the northwest extreme of Dead islands.

A cove, $\frac{1}{2}$ of a mile deep and 300 yards broad, is situated on the east side of West island, and contains good anchorage for small vessels in $3\frac{1}{2}$ fathoms, sand, though the shores are fringed by rocks that cover at high water. By keeping the islets on the west shore 50 yards distant, the cove may be entered and anchorage obtained as convenient. Southeast of this cove a number of small islets lie close off the shore of West island, forming snug shelter for boats, and steep-to towards the harbor.

Banks.—Several banks are situated to the southward and eastward of the western point of West island.

Taylor bank, the shoalest, has over it a depth of $7\frac{3}{4}$ fathoms water, and bears NE. $\frac{1}{4}$ N., 350 yards distant from that point.

A rock, with 7 feet water on it, lies close SE. of the east entrance point of the inlet immediately north of Western point.

Pigeon island lies less than 100 yards from the southeast point of West island, to which it is almost joined by rocks. It is round in shape, 55 feet high, and on the east side has a fringe of shoal water; and an isolated rock, with 1 foot water on it, lies close to the north extreme.

Bull island, 127 feet high, is the most southern of the Dead islands; it may be distinguished by a conspicuous quartz vein on the seaward face, and forms an easy mark for distinguishing the entrance to Dead islands harbor. The Bull, a rock with 9 feet, lies 65 yards east of the south point, but the east and north sides of the island are steep-to.

Shoal water extends about 10 yards from the north extreme of this island.

Butler island, 98 feet high, is connected by rocks and shoal water to the west side of Bull island, and may be approached to 50 yards from the north and east sides. It is flat and covered with grass, has some rocks lying 100 yards off the west side steep to westward, and a rocky spit extending 100 yards from the northwest extreme.

Harbor island, 250 yards NW. of Bull island, is 100 feet high, barren and rugged, steep-to on the west side, but with a fringe of shoal water a few yards off the east side, and some low rocks off the south end.

Dead islands harbor may be entered by the channels on each side of Harbor island, the best being between it and Bull island.

Harbor rock, awash at high water, but always showing, lies just inside the entrance, is skirted by shoal water, and a rock, with 7 feet, lies 70 yards west of it.

A rocky bank with two heads, the least depth of water on which is $3\frac{1}{4}$ fathoms, bears SW. $\frac{3}{4}$ W., 200 yards distant from Harbor rock. The north extreme of Bull island shut in with the north extreme of Butler island, bearing E. $\frac{1}{4}$ N., leads south of this bank.

Anchorage may be had in 10 to 12 fathoms as convenient, but icebergs drift in continuously during the early part of the summer. Large vessels should not proceed so far as to bring Stowe tickle point, east of the cove, to bear west, to avoid a shoal lying off some rocks that cover 2 feet at high water, and extend 300 yards from that point.

North island, $1\frac{1}{2}$ miles long and 700 yards wide, is separated by a narrow channel from the northeast side of West island, and consists of two parts joined at low water. The junction is north of a rocky cove 350 yards deep, and is always impassable, even by boats. The southern part is rugged and cliffy, the northern and higher consists of conical hills covered with grass and stunted bushes, and is 220 feet high at the highest part. A cove one-quarter of a mile deep, free from danger, extends into the north side of the island, and the east shore, off which are two rocky islets and some rocks, may be approached to within 200 yards.

Stowe tickle, between West and North islands, is available for small vessels, with a commanding breeze, but not without a local pilot. A rock, awash at high water, lies in mid-channel at the narrows, where the passage is only 100 yards wide from shore to shore, and is connected by shoal water to West island. Shoal water also extends from the rock 150 yards to the northeastward.

Seine island, 10 feet high and 400 yards west of the narrows, is joined to the shore of North island by bowlders that dry at low water. Shoal water extends west from it diagonally across the apparent channel, but the south end is steep-to. A low rock lies opposite Seine island, steep-to on the north side, but with shoal water extending to the eastward in a parallel line to that off Seine island, leaving a channel a few yards wide with 3 fathoms water.

Another group lies northwest of Dead islands, the south coast of which only has been surveyed. The eastern island of this group is separated from the north point of North island by a channel 300 yards wide narrowed to 200 yards by shoals lying off the north shore.

Middle island, 16 feet high, small and grassy, lies in the middle of this channel, and is connected by reefs to the northern group, but the south shore may be approached to 50 yards.

Anchorage may be had in this channel off the north entrance to Stowe tickle, in 14 to 7 fathoms, mud, in a space $\frac{1}{2}$ mile long and 400 yards broad, with perfect shelter from all winds.

East island, 141 feet high, gray and rugged, lies 100 yards from the south point of North island, the passage between being clear in mid-channel. Shoal water extends a short distance off the east side, but the other sides are bold-to.

Gull island, 281 feet high, is conical, dark and conspicuous from all directions. A rock, with 12 feet water on it, lies 135 yards from the northeast point. Otherwise the island is steep-to.

A reef, with $1\frac{1}{2}$ feet water on the shoalest part, and nearly 200 yards long, lies 100 yards distant from the west shore of Gull island. In passing through the channel between North and Gull islands vessels should keep about one-third of the breadth from North island.

Shoal.—A shoal with $4\frac{3}{4}$ fathoms water over it is situated N. by E. $\frac{1}{2}$ E. 200 yards distant from the south extreme of Meeting-house island.

Meeting-house island, 48 feet high, is divided from the south shore of Gull island by a channel 150 yards wide, in which is a rock with 9 feet on it 100 yards from Gull island. A rock with 4 fathoms water, is situated ESE. $\frac{1}{2}$ E. 150 yards from Meeting-house island, and is bold-to.

Cape Bluff, one of the most prominent headlands on the northeast coast of Labrador, falls steeply from a double-peaked hill 719 and 695

feet high, ending in steep cliffs. The south extreme is formed by a small rocky peninsula 110 feet high, that shelters an open cove 300 yards deep.

A bank 250 yards long, with $3\frac{3}{4}$ fathoms water over it, lies 100 yards distant from the shore of cape Bluff, and E. $\frac{1}{4}$ N. 467 yards distant from the south extreme of the easternmost of Harbor islets.

The summits of Gull and Pigeon islands in line, bearing S. by E. $\frac{3}{4}$ E., lead west of this bank.

Cape Bluff harbor is entered three-quarters of a mile west of the cape and extends inland $1\frac{1}{2}$ miles nearly, with an average breadth of $\frac{1}{2}$ mile, and then divides into two arms; the western, affording good anchorage for small vessels in 9 to 12 fathoms, mud, is $\frac{1}{2}$ mile in diameter, and is continued at the south end by a long shallow inlet. The eastern arm is narrow and one-third of a mile long. The west shore of the harbor slopes steeply to the harbor from a round-topped bluff hill 337 feet high, but gradually to north and south in a series of hummocks faced by cliffs. A deep valley extends from the head several miles inland, containing a chain of ponds under the slopes of rocky hills.

A shoal, with $4\frac{1}{2}$ fathoms water on it, lies 134 yards distant from the east entrance point to the arms at the head of cape Bluff harbor, and a bank, with seven fathoms water over it, lies 300 yards distant to the southward of the same point.

Harbor islets, a small group, the highest of which is 56 feet high, lie in the middle of the harbor more than $\frac{1}{2}$ mile from the entrance. Foul ground extends a short distance north, falling suddenly to deep water. A rock, with 10 feet water lies 70 yards from the southeast point, and a shoal with 15 feet lies in mid-channel between these islets and the west shore of the harbor.

Anchorage may be had by large vessels in 16 to 20 fathoms north of Harbor islets, and may be reached by the east channel, keeping nearer the mainland than the islets.

Pigeon island, conical, dark, and 106 feet high, is separated from the southwest point of cape Bluff harbor by a channel 100 yards wide, through the middle of which 6 fathoms water can be carried nearer the island shore, as some rocks extend a short distance off the mainland. The island is steep-to.

Triangle island, just west of Pigeon island, is 300 yards long, and 60 feet high. A low rock lies close off the south end, east of which is a shoal close to, and the north end is joined to the mainland at low water.

Triangle harbor is entered north of the island through a passage 45 yards wide that opens into two coves a quarter of a mile deep and 200

yards broad, affording good anchorage for small craft in $6\frac{1}{2}$ fathoms, mud. The shores, on which are several houses, are bold-to, except at the east turning point into the east cove, close off which is a rock. The entrance is sometimes completely blocked by an iceberg.

The coast from cape Bluff trends N. $\frac{1}{2}$ W. $3\frac{1}{2}$ miles to Southern head, and thence NW. by W. one mile to Snug harbor. The whole is rugged and barren, with dark forbidding cliffs, intersected by deep ravines, up which the sea breaks heavily with on-shore winds.

Gull island, 70 feet high, lies off this coast $1\frac{1}{2}$ miles from cape Bluff, and separated by a channel 200 yards wide from two rocky islets that are nearly joined to the mainland. It is white in color, and shows well against the dark cliffs of the main. A rock, that covers 3 feet at high water, lies 100 yards to the southward of Gull island, and is continued a short distance by shoal water.

Gull rock, with 7 feet water, lies E. five-eighths of a mile, and Matthews bank, with 3 fathoms, lies SE. by E. 1 mile from Gull island. Both these are small pinnacles and steep-to.

Snug harbor is entered west of Murray point, the extreme of a small conical hill 78 feet high, and affords only indifferent anchorage, the water being 24 fathoms deep in the wide part of the harbor and shoaling only near the rocks. The entrance is 250 yards wide, inside which the harbor expands into a basin one-third of a mile in diameter, from the south end of which an arm 250 yards broad extends half a mile. The west side of the basin is encumbered with islets and shoals, the latter extending in a bar from the first point on the north shore within the entrance to the western islet, and rendering that portion of the harbor unfit for anchorage. Icebergs drift in continuously in the early months of navigation.

A rock, with 12 feet water, lies 100 yards nearly from the west extreme of Murray point, and a rock, with 6 feet water, the same distance off a small indentation on the opposite shore. The shores of the harbor slope from a grassy hill 400 feet high on the north side, and from rugged hills on the south side. Several houses are built round the shore, and large salmon trout can be fished from the salt water in this harbor.

Herring cove, 400 yards deep, is situated NW. one-third of a mile from Murray point, and affords no shelter. A hill, 315 feet high, with a conspicuous knob at the summit, is situated just north of this cove.

Cooper island, N. $3\frac{1}{2}$ miles from cape Bluff, is $1\frac{1}{2}$ miles long, and consists of two parts joined by a low marshy valley. The south part is formed of two principal conical hills; the higher, 475 feet high, falls sharply to seaward. The north part is composed of hills that are con-

siderably lower and make flat in outline generally. The south side terminates in a square rock called the Cooper's block, and with the east side is steep-to. Delaney cove runs in half a mile on the east side of the island and separates the two parts. The cove is half a mile wide at the entrance, narrows gradually to the head, and affords shelter for a few boats only under the lee of the fishing stages erected at the head. There are some houses at the head of this cove, and at Green cove on the west shore. The latter is an open beach with a few low rocks lying close to the shore. A heavy swell rolls in with easterly gales.

Banks.—Several banks are situated southward of the channel between Cooper island and the mainland. The following are reported to break with a heavy sea:

Long point bank, with 10 fathoms water over it, bears NE. $\frac{1}{4}$ N. three-quarters of a mile distant; **Small Skelligs**, with 8 fathoms water on it, bears NE. $\frac{3}{4}$ N. $1\frac{1}{10}$ miles distant; and **Large Skelligs**, with 7 fathoms water over it, lies NNE. $\frac{3}{4}$ E. $1\frac{1}{2}$ miles distant, respectively, from the summit of Gull island.

Pot rock, with $4\frac{1}{2}$ fathoms on it, lies between Cooper island and the south point of Bauger island at a distance of nearly 200 yards from the former; **Scab rock**, with $7\frac{1}{2}$ fathoms water over it, bears N. by E. $\frac{1}{2}$ E. 200 yards distant from the north extreme of Cooper island.

Gray rocks, awash at high water, lie 300 yards off the north shore of Cooper island, and are nearly joined to it by a ledge with 9 feet water at the south end. Almost immediately south of these rocks is a shallow cove faced by a small islet.

A rock lies 50 yards off the northwest point of Cooper island.

Gray rock shoal.—This danger, with 11 feet water on it, lies N. by E. $\frac{1}{4}$ E. 350 yards distant from Gray rocks, and in the fairway of the channel between Snug harbor and Venison tickle. Gray rock open north of Cooper island, bearing SW. by W. $\frac{1}{4}$ W., leads south; the north extreme of Macy island, in line with the south extreme of Car-na-bhus island, bearing W. $\frac{1}{4}$ N., leads northeast; and the south extreme of Dark Tickle island in line with the north extreme of Cooper island, bearing SW. $\frac{1}{2}$ S. nearly, leads north of this shoal.

Numerous banks are situated to the eastward of Cooper island. Greenfield shoal, the easternmost, has 16 fathoms water over it, and bears ENE. a little more than a mile distant from the northeast extreme of Cooper island; Tub harbor bank, with 12 fathoms water over it, is the shoalest, and lies N. by E. 1,400 yards distant from the same point.

Banger island, 97 feet high and 400 yards long, is separated from the west side of Cooper island by a channel a quarter of a mile wide.

It is round in shape, and rocks extend a short distance both from the southeast side and the south point.

Dark Tickle island is separated from the north side of Banger island by a shallow channel 100 yards wide. It consists of a number of conical hills with deep valleys between, and is much indented by coves that nearly divide the island into two parts. The highest hill, 152 feet high, is over the west shore. A small black rock lies off the southeast point, and a small rock, that covers 3 feet, lies 150 yards off the island, and SSE. $\frac{1}{4}$ of a mile from the north point.

Lord arm, entered west of Dark Tickle island, between it and the mainland, consists of an open bay $\frac{1}{2}$ mile in diameter, with 19 to 25 fathoms water, a shallow cove to the northwest and an arm to the southwestward. The arm is nearly a mile long and 150 yards wide at the entrance, expanding to $\frac{1}{4}$ mile within. The only dangers are two small rocks that cover 4 feet, close off the north shore at three-quarters of a mile within the entrance, and a fringe of bowlders, that cover at high water, on the south shore half a mile from the entrance. On the west side of the entrance is a rocky hillock 100 feet high, and immediately within it an isolated hill 203 feet high. The shores are barren and with no remarkable feature, sloping from burnt hills 470 to 205 feet high. From the head a deep valley with numerous ponds trends some miles inland. On the north side of the bay the hills are covered with grass and scrub, the highest being 295 feet.

Macy tickle, between the north side of Dark Tickle island and the mainland, is 150 yards wide, and clear in mid-channel. Two small spits of rock that cover extend a short distance from the mainland.

An island, 55 feet high, lies N. by E. $\frac{1}{2}$ E. $\frac{1}{3}$ mile from the east entrance to Macy tickle.

Dangers.—Several dangers lie between the island situated 600 yards N. by E. $\frac{1}{2}$ E. from the east entrance to Macy tickle and the mainland to the westward; but the passage may be taken by keeping the west extreme of Dark Tickle island just shut in with Macy point, north of Macy tickle, bearing S.

Macy island, 53 feet high and 400 yards northeastward of Dark Tickle island, slopes gradually to the sea, is grassy over reddish rock, and may be approached to 100 yards.

Car-na-bhus, about 100 feet high, conical and covered with grass over reddish gray rock, is situated 300 yards northeast of Macy island and half a mile northwest of Cooper island. The shores are foul for 100 yards, and a rock that covers 3 feet lies NNW. 100 yards from the northwest point.

Shoals extend a distance of 400 yards northward of Car-na-bhus island. The points of Macy tickle open, bearing SW. $\frac{1}{2}$ S. nearly, lead north of these shoals.

The knob, a small rock with $5\frac{1}{4}$ fathoms water over it, is situated SE., 200 yards distant, nearly, from the east extreme of Car-na-bhus island.

Deepwater island, 87 feet high, and half a mile northwest of Car-na-bhus, is small, and has a low islet off the west side.

Stony island is separated from the north side of Cooper island by a channel $1\frac{1}{10}$ miles wide, and is formed of round-topped barren hills, intersected by deep valleys. The summit, 656 feet high, is situated just west of Cox cove, to which it falls abruptly in two terraces. Cooper head, the south extreme, slopes from a cone 403 feet high, and from it a reef extends 200 yards.

Tub harbor is situated on the southwest side of Stony island, and is entered NW. one mile from Cooper head. The harbor is small, but affords snug anchorage to vessels of less than 200 tons; it has two entrances, but both are intricate and should not be attempted without a pilot. There are several fishing stages to which vessels moor.

A rock awash lies off the south entrance; another rock at the north side of the southern entrance, which always shows, and a short distance to the northward of the latter is a rock which only breaks in bad weather.

The east shore is bold to as far as Venison tickle. Black rock, 2 feet high, lies 250 yards off the east side of Cooper head. Close to the south end is a rock that covers. Shark rock, with 7 feet, lies N. $\frac{1}{2}$ E. 300 yards from Black rock and $\frac{1}{4}$ mile nearly from White island.

Venison island, on the east side of Stony island, is three-quarters of a mile long and 600 yards broad; on the summit, 224 feet above high water, is a flagstaff 67 feet high surrounded by a white fence that shows conspicuously from all directions. South of the summit is a bluff that is remarkable when seen from the northward. On the west side are two spurs overlooking the tickle. There is a large fishing establishment with a wharf, alongside which is nearly 3 fathoms water, with rocky débris immediately inshore.

Venison tickle is the narrow passage between Venison and Stony islands, much used by fishing craft both as a channel and anchorage, the shelter being perfect from all winds. Through the south entrance, that is only 50 yards wide, not more than 3 fathoms deepest water can be carried, and no vessel drawing more than 12 feet should attempt it; but from the north entrance the water gradually shoals from 8 fathoms to the depth of 3 fathoms at the south end.

Tides.—It is high water, full and change, in Venison tickle at 6h. 47m. Springs rise $5\frac{1}{2}$ feet and neaps 4 feet.

White island, 48 feet high, consisting of two portions joined together at low water, lies three-quarters of a mile to the southward of the entrance to Venison tickle, and has two rocks off the southwest extreme.

Cod rock, with 7 feet water, lies W. by N. 400 yards from the south point of Venison island, and 135 yards from the nearest point.

The north points of the tickle, just open of the south points, so that the passage through is seen bearing N. by E., leads 135 yards west of Cod rock, to the south entrance.

The King, a rock that breaks in moderate weather, lies E. by N. $\frac{1}{2}$ mile nearly from the south point of Venison island.

The Queen, with 15 feet water, lies S. by E. $\frac{1}{2}$ E. 200 yards from the King, and E. $\frac{1}{2}$ mile nearly from the south point of Venison island.

Fox island, 125 feet high, is separated by a clear channel 200 yards wide from the northeast shore of Venison island. It consists of two dark hillocks with steep cliffs on the east side, and is steep-to.

Gun rocks, low and black, lie just south of Fox island, and are bold-to.

Pigeon island is wedge-shaped, the summit, 49 feet high, being near the north extreme, off which shoal water stretches 100 yards. It is nearly joined to the north extreme of Fox island.

Sculpin island is separated from the east side of Fox island by a clear channel 350 yards wide, and is steep-to on the northwest and southeast sides. A rock lies off the south point, and rocks and reefs extend 250 yards from the north extreme. This island is covered with grass over reddish gray rock.

The passages between this and Eddystone island should not be taken.

Hen and Chickens, 20 feet above high water, lies NE. by E. $\frac{1}{4}$ E. a mile nearly from the north entrance to Venison tickle. A reef extends 200 yards from the northeast extreme.

Eddystone island, 20 feet high, makes as a round black lump and is the easternmost of the group extending from Venison island, from which it is distant $1\frac{1}{4}$ miles. A rock, awash at high water, lies close southwest of Eddystone island, and a shoal with $4\frac{1}{2}$ fathoms water lies 150 yards south of the east extreme.

From the point of Stony island, at the north entrance of Venison tickle, sunken rocks and shoals extend east a little more than half a mile to Deepwater island, a gray bare rock 30 feet above high water.

The passage is south of these islands and reefs, and by keeping the north point of Venison island bearing SW. $\frac{1}{4}$ W. a mid-channel course may be steered to the tickle.

White point, N. $\frac{1}{4}$ E. $\frac{1}{2}$ mile nearly from Deepwater island, slopes from a conical hill about 270 feet above high water.

The Flats, a reef with 6 feet on the outer edge, extend S. by E. $\frac{1}{4}$ E. 300 yards from this point.

The Skerries, a rocky bank with least water of 4 fathoms, lies N. by E. $\frac{3}{4}$ E. a mile from Eddystone island.

Venison island flagstaff, in line with the south extreme of Hen and Chickens, SW., leads 200 yards to the southward.

Wild bight, open and exposed, is situated on the north side of White point, and affords shelter for a few boats, but a heavy sea rolls in there with easterly winds, destroying the fishing stages, and even sweeping away the houses. Louse rock, low and flat, lies close to the east point.

The east shore of Stony island is bold-to.

Red island, N. by E. one mile from White point, is 83 feet high, composed of reddish gray rock, with two summits of the same height, the western being covered with turf. The island is bold-to.

Hawke island, separated from the north side of Stony island by a channel $\frac{5}{8}$ mile wide, is composed of dark rock formed into numerous craggy hills, the highest of which are from 532 to 477 feet high, with boulders in great numbers both over summits and slopes. It is $5\frac{1}{2}$ miles long and 4 miles broad. Deep valleys, generally wooded, intersect the hills, containing several ponds; but all the hills are bare at the summits.

Hawke harbor lies on the south shore and affords good anchorage in 10 fathoms, mud, within some rocks that lie across the passage about a quarter of a mile from the head. The western channel is clear, but the eastern is shallow.

Styles harbor lies at the southeast extreme, and is formed by a small peninsula 80 feet high, joined by a narrow neck to the mainland. The harbor extends northwest 200 yards and then with a sharp turn southwest $\frac{1}{4}$ mile with an even breadth of 100 yards, and excellent shelter for fishing craft in 2 fathoms.

The Pig, an islet, one foot above high water, lies SW. $\frac{3}{4}$ S. half a mile from the entrance to Styles harbor.

Bank.—A bank, with depths of less than 10 fathoms water, extends 1,200 yards south from Pig islet. The shoalest part, with $6\frac{1}{2}$ fathoms water over it, bears S., 450 yards distant from that islet.

Harbor island, 14 feet high, lies SE. 300 yards from the entrance to Styles harbor, and is bold-to.

Mad Moll, with 6 feet water, deepening quickly, lies S. by W. $\frac{1}{4}$ W. $\frac{1}{4}$ mile from Harbor island. The white islet at the west point of the entrance to Hawke harbor, in line with the Pig, W. by N. $\frac{1}{4}$ N. leads south, the west point of Transport island, open west of Harbor island N. by E. $\frac{1}{2}$ E. leads west, and open east of Harbor island N. $\frac{1}{4}$ W. east leads east of this rock.

Black rock, 8 feet high, lies E. $\frac{1}{2}$ N. 400 yards from Harbor island, and is steep-to.

Vessels bound to Styles harbor may pass on either side of Harbor island or Black rock.

Styles rock, with 3 fathoms water, lies SSE. $\frac{1}{3}$ mile from Black rock, and falls quickly to the southward and northward. White point S. by W. $\frac{3}{4}$ W. well open east of Red island, leads east, and the mound on White point open west of Red island SSW. leads west of this rock.

Transport island is separated from the southeast end of Hawke island by a channel 50 yards wide, through which a depth of 12 feet can be carried. It is conical, $\frac{1}{4}$ mile in diameter, 116 feet high, and covered with dark brush over whitish rock.

Musket island, a white bare rock 25 feet high, lies 400 yards northeast of Transport island. Low rocks form a continuation to the westward, and a reef extends to the southward a little more than 200 yards.

Outer Musket rock, with 9 feet water, lies ENE. $\frac{1}{2}$ E. $\frac{1}{4}$ mile from Musket island.

Bank.—A large bank lies off Musket island, the least water, 11 fathoms, being situated E. $\frac{3}{4}$ N. $1\frac{1}{2}$ miles distant.

Ward island, 22 feet high, white and bare, lies 300 yards north of Musket island. Another bare island, 29 feet high, lies just west of Ward island, and is almost joined to Hawke island at low water, forming the south point of the entrance to Holloway bight.

Holloway bight, more than $\frac{3}{4}$ mile deep, and half a mile wide at the mouth, is open and exposed to easterly winds that in the early months of summer nearly fill the bight with icebergs, the water being deep. There is no anchorage except with winds from the westward, that, however, sweep down in heavy squalls. A small bank, with $9\frac{1}{2}$ fathoms water, lies in the middle of the entrance.

A group of islets extends from off this bight to the east extreme of Hawke island, and they are all bold to on the south side, but no stranger should attempt to pass between them and Hawke island.

Upper Bird island, 29 feet high, flat and bare, is situated close off the north point of Holloway bight. Low rocks extend to north and east, and a sunken rock NNE. $\frac{1}{2}$ E. 350 yards from Upper Bird island ends the group.

Ledge island, the next to the northeastward, consists of two cones covered with grass, the higher 60 feet above high water. A bare islet lies close north of it.

Deepwater island is the eastern, and is composed of two bare rocky hillocks joined by a low neck across which the sea breaks; the western

and higher, 47 feet above high water. South of this island is a low black rock with another awash close to the east end; and two small islets lie close west.

Bird island, northwest of Deepwater island, is surmounted by a bare dark round hill 66 feet high, and is separated from Hawke island by a narrow channel that only boats can pass through. A small cove on the south side of the island forms good shelter for boats, and small vessels may find fair summer anchorage in $3\frac{1}{4}$ fathoms west of this island, but a heavy sea rolls in with easterly gales. An islet, 8 feet above high water, lies SE. 200 yards nearly from Bird island, close north of which is a rock that covers at high water.

Black rock, one foot high, lies 200 yards northwest of Deepwater island, and has shoal water extending 100 yards east and west from it.

Beckett rock, 4 feet high, terminates the group and is bold to south and east. A shoal, with 8 fathoms water, lies N. by E. $\frac{1}{2}$ E. $\frac{1}{2}$ mile from Beckett rock.

Vessels wishing to proceed to Bird island anchorage should keep close north of Deepwater island, and then mid-channel between Bird island and the islet close southeast of it.

Kennedy island, 77 feet high, is the highest of a group nearly joined to each other, and separated by a narrow shoal channel from Penguin head, the east point of Hawke island. It is formed of gray rock, falls steeply to the southward, and appears conical from the north.

Turr rocks consist of a brown bare islet in two parts, 16 feet high, lying NE. $\frac{1}{2}$ E. $\frac{1}{2}$ mile from Penguin head, and a black islet 7 feet high, E. 330 yards from the brown islet. A rock, with 4 feet water, lies SW. $\frac{3}{4}$ S. $\frac{1}{4}$ mile from the eastern of the Turr rocks. Bear island, open either side of the western of the Turr rocks, leads north and south of it. A shoal, with 6 fathoms water, lies SE. by $\frac{1}{2}$ E. 250 yards from the eastern, and a rock with 12 feet water on it NNE. $\frac{1}{4}$ E. 200 yards from the western of the Turr rocks.

Scrape cove, entered $\frac{1}{2}$ mile northwest of Penguin head, is more than $\frac{1}{2}$ mile deep and $\frac{1}{2}$ mile wide at the entrance. The shores consist of bold crags, while the water is too deep for anchorage, and rocks that cover lie in the cove 200 yards from the north point of the entrance.

Penguin harbor, immediately north of Scrape cove, is divided into two arms by Greens island, a rugged dark clifty cone 124 feet high. The southern arm is open and exposed, but the northern arm is half a mile deep and 150 yards wide, affording anchorage for fishing craft only, in 5 to 3 fathoms, but gives excellent shelter for boats. The sides fall in almost perpendicular cliffs, the summits from 387 to 325 feet high.

Harper island, $\frac{1}{2}$ mile northwest of Greens island, is separated from the mainland at high water by a narrow channel filled with bowlders, down to which the summit, 216 feet high, falls almost perpendicularly. The eastern part is surmounted by a round hill 115 feet high, and the whole should not be approached nearer than 200 yards. Anchorage may be had north of the channel between the island and the mainland, off a small islet, in 8 fathoms.

Bear island, 88 feet high, is the south extreme of a group lying parallel to the northeast shore of Hawke island. It is about 250 yards in diameter, flat at the summit, and falls steeply all round. A bare flat rock just above high water lies close off the southeast extreme, but the whole may be approached to within 100 yards.

A rock, with 7 feet water, lies SE. one-third of a mile, and a rock, with 4 feet water, S. 400 yards from the rock at the southeast extreme of Bear island. Harper island, well open west of Stag island, leads west; the east point of Holloway bight, seen between Turr rocks, leads south; and Fish point, well open of Bear island, leads east of these rocks.

Stag island, northwest 140 yards from Bear island with a clear channel between them, is three-quarters of a mile long, half a mile wide, and is surmounted by two hills separated by a deep ravine, the southern 294 feet and the northern 291 feet high. From the north end a spur projects having a double summit 125 feet high, and forming the north side of Duck cove, a shallow place fit for boats only. The east shore is of dark cliff with a low gray projection 40 feet high near the south end, terminating in Fish point. A rock, with 7 feet water lies 100 yards off this point. The west shore is rugged with low points, off which shoal water extends a short distance.

Old Jeff island, 100 yards north of Stag island, is 135 feet high, flat at the summit and falls steeply to the water line. A white house stands a short distance up the hill on the east side. Off the southeast side bowlders extend a short distance, and from the south point a bank, with less than 3 fathoms, extends 135 yards. The summit of Cox head, shut in with the north point of Stag island, leads south of this bank. The channel north of the island is narrow and foul, but 10 feet can be carried through at high water by pilots acquainted with the passage, which is close to the shore of Big island.

Boulter rock, small, flat, and bare, with a red house at the top, lies just east of old Jeff island, to which it is joined at low water. This rock has given the name to the anchorage comprised between Stag and Big islands, where shelter may be found from all winds during the summer in 8 to 4 fathoms as convenient. During the heavy gales of autumn this anchorage is not safe with winds from north to east.

Big island, covered with dark herbage on the slopes over dark rock and wooded in the valleys, is 1,300 yards long and the same at the greatest breadth. It is composed of three ranges divided by deep valleys, the summit being at the west end of the middle range, 254 feet high. A rock lies close to the shore under the cliff east of the anchorage.

Northeast rock, with 12 feet water, lies NE. by E. 125 yards from the east point, and 150 yards from the northwest shore of Flat island. The white house on old Jeff island, well open south of Big island, leads south; and Red island, open east of Flat island, leads east of this rock.

The east shore is of cliff, steep-to, and deeply indented by Blackguard gulch, a cove ending in a narrow fissure in the cliffs. Locks rock, with 3 fathoms water, lies 135 yards off the north point. The north shore may be approached to a short distance.

A rock, with one foot water, lies S. a little more than $\frac{1}{4}$ mile from the northwest point of Big island, leaving a clear passage between it and the island, 250 yards wide. The channel between Old Jeff and Big islands, well open of the west point of the latter, leads south, and Turr rocks, shut in with Harper island, lead west of this rock.

Shoal water extends 200 yards off a shingle beach facing a cove just north of Old Jeff island.

Flat island lies on the east side of the channel between Big and Stag islands. It is nearly level, the summit, 77 feet high, falling in a cliff to the east point. The south shore is foul for a short distance and a small cove is situated on the north side.

Sparrowbill island, 13 feet high, and flat, lies just east of Flat island, and is continued to the southwestward by a reef 250 yards long that also joins Flat island.

Red island, east of Sparrowbill island and so called from the color of the rock, is bare, 38 feet high, and has foul ground extending a short distance from the high-water line.

Black rock, 10 feet high and bare, is the easternmost of these islands and is bold-to.

Caplin bay.—This bay is entered between Stag and Harper islands, and is connected with Hawke bay by Deer pass (locally known as Squasho run).

Directions.—From the southward. The southwest point of Stag island must be rounded at more than 200 yards distant to avoid shoal water off it, and when 200 yards north of that point, the northwest shore of Stag island must be kept close on board to avoid the boulder bank off Old Jeff island, and when the channel between Old Jeff and Big islands is opened north of Boulter rock, haul in and anchor as convenient.

From the eastward. The channel between Old Jeff and Big islands kept midway between Stag and Flat islands will lead to the anchorage.

From the northward. The east end of Flat island should be steered for, and when the white house on Old Jeff island is well open off Big island, run in on that mark and anchor as convenient.

Entry island lies 135 yards from Big island in the channel between it and the mainland, leaving a clear passage on each side. It is 60 feet high, falls in steep reddish cliffs to the south side, and appears conical when seen from east to west. An islet, 7 feet high, is joined by a reef to the east end of Entry island.

Island and shoal.—Off the east entrance point of Deer pass there is a small island, and at 200 yards WSW. $\frac{1}{2}$ W. from the north extreme of this island is situated a rocky shoal, 15 yards in diameter, steep-to, and having over it a depth of 2 feet.

Anchorage.—There is fair anchorage in a small cove on the north shore of Deer pass, just within the entrance from Caplin bay, in 15 fathoms, mud.

Hill harbor, on the mainland northwest of Big island, is 800 yards deep and 250 yards broad, is clear of danger except near the head, and affords good anchorage in 10 to 4 fathoms, mud, as convenient. A bare islet 17 feet high lies a quarter of a mile west of the entrance.

Harbor island, 36 feet high and covered with grass, lies close to the east point of the harbor, and the water is shallow between it and the shore.

The coast from Hill harbor trends northeast, is very rugged, with reddish cliffs, intersected by small coves, and is encumbered with rocks and islets till east of Entry island.

The Hump, a shoal with $4\frac{3}{4}$ fathoms water, lies NE. 800 yards from the north point of Big island and 550 yards from the coast.

The Feather Bed, a rocky patch with two heads, the least water being 7 feet, lies NE. $\frac{1}{10}$ mile from the north point of Big island and $\frac{1}{2}$ mile off the shore. Mad Moll, in line with the south point of Cox island, or the west point of Hill harbor, open north of Entry island, leads north, and Bear island, seen open east of Red island, leads east of these shoals. Bear island, touching the south point of Red island, leads between them.

Salt pond, $1\frac{1}{2}$ miles northeast of Hill harbor, is a creek fit for small schooners, extending $\frac{1}{4}$ mile from the narrow entrance, with a breadth of 65 yards. There are no dangers in the entrance, but craft should be prepared for the violent squalls and eddying winds that sweep down from the surrounding hills.

A shoal, with $4\frac{3}{4}$ fathoms water, lies S. by W. $\frac{1}{2}$ W. 400 yards from the west point of the entrance to Salt pond. The marks given for clearing north of the Feather Bed lead south of this shoal.

An islet, one foot above high water and bold-to, lies just east of the entrance to Salt pond.

Cox head is the south slope of a conspicuous dark wedge-shaped hill, the summit of which, 282 feet high, falls steeply to the seaboard.

Comfort head is the eastern slope of the hill over Cox head. Off this head is a labyrinth of rocks and shoals, that after easterly gales present the appearance of one mass of breakers; but in fine weather there is a good channel for moderate-sized vessels inside all.

Cox island lies 70 yards from the south part of Cox head, is 103 feet high, flat in outline, and faced by reddish cliffs, bold-to on the south side, but with shoal water between it and the mainland.

The Cobbler, 4 feet above high water, is a brown bare islet, with a shoal extending a short distance from the south extreme, but bold-to on the north side.

Pinsent rocks, are two in number, lying north and south 150 yards apart, and NE. $\frac{1}{2}$ E. about 300 yards from Cox island. The northern is awash at high water, the southern is one foot high, and both are steep-to on all sides.

Connor rocks, E. $\frac{1}{2}$ S. 335 yards from Pinsent rocks, are three in a line, close together, about awash at high water, and bold-to.

Old King, with 5 feet least water, lies E. by S. $\frac{1}{8}$ of a mile from Cox island, and consists of three heads, forming a bank nearly 200 yards square. The summit of Hawke island, seen over the channel between Bear and Stag islands, leads south; Black rock, open south of Duck island, leads north; and the summit of Cox head, in line with Connor rocks, leads west of this danger.

Gull island, 40 feet high, lies close to the shore under the summit of Cox head, and being white, shows plainly against the dark cliffs of the shore. There is deep water close to it.

The Brandies, a cluster of rocks that always show by breakers and have deep water close to the north side, are situated E. $\frac{1}{2}$ N. 350 yards from Gull island.

A group of rock awash at high water lies N. $\frac{1}{2}$ E. 200 yards nearly from Gull island, and is bold-to on the south side. A shoal, with $4\frac{1}{2}$ fathoms water, is situated E. $\frac{1}{2}$ S. about 200 yards from this group.

Mad Moll, a brown rock 3 feet above high water, lies E. $\frac{1}{2}$ N. about $\frac{1}{2}$ mile from Gull island. A shoal, with 3 fathoms water, is situated midway between Mad Moll and the Brandies, and a rock with 7 feet,

lies N. $\frac{1}{2}$ E. 135 yards from Mad Moll. Charlie bank, with $6\frac{1}{2}$ fathoms water, lies SE. $\frac{1}{2}$ S. 350 yards, and Tom Power rock, with 12 feet, S. by W. $\frac{1}{2}$ W. $\frac{1}{4}$ of a mile from Mad Moll.

Little black rock, 4 feet above high water, is round and brown, lying east $\frac{1}{3}$ of a mile from Comfort head. A shoal, with three fathoms water, lies SE. $\frac{1}{2}$ S., and shoal water extends a short distance north from it.

Butler rocks, a low group, lie NE. 200 yards from Comfort head. A shoal, with $3\frac{1}{2}$ fathoms water, is situated SE. by E. 200 yards from the highest rock.

Harbor rock, with 9 feet water, lies N. by E. 300 yards from Butler rock, and is nearly bold-to. Owl head, open east of Owl head island, leads east of this danger.

Black rock, 16 feet high, is the eastern of this group of rocks, and is surrounded by banks, all of which break in bad weather.

Bantam, with 5 fathoms water, lies SE. $\frac{3}{4}$ S. half a mile; East rock with 8 fathoms, SSE. $\frac{3}{4}$ E. 270 yards; Middle ground, with $5\frac{1}{2}$ fathoms S. by E. $\frac{1}{4}$ E. $\frac{1}{4}$ of a mile; Southwest ground, with 8 fathoms, SW. by S. 250 yards; Rose bank, with 9 fathoms, W. $\frac{1}{2}$ mile; and Caleb bank, with 8 fathoms, NW. $\frac{1}{4}$ of a mile from Black rock.

The following are dangerous in ordinary weather. A shoal with 3 fathoms water N. $\frac{1}{2}$ W. 100 yards, and the Planter, with 3 fathoms, WNW. $\frac{1}{4}$ W. $\frac{1}{4}$ of a mile nearly from Black rock.

Comfort bight consists of the deep inlet between Comfort and Partridge heads, and contains a large bay and two good harbors for small craft, sheltered by small islands and much frequented by fishing vessels.

Partridge head, east of the bight, makes the entrance unmistakable. It is a remarkable table-topped hill 550 feet high, showing conspicuously from all directions and falling steeply to the seaboard. A sharp cone 406 feet high forms the east extreme, is separated by a deep valley from the main hill, and shows prominently from the southward.

Sprackling island, 83 feet high, dark and conical, lies close northwest of Comfort head, with two small islets to the westward, the whole of which are connected together and to the mainland by shoals and rocks.

Bartlett rock, 8 feet high, lies 100 yards from the east end of Sprackling island, and is bold-to on the north side.

Middle island, 34 feet high, flat and bare, lies 150 yards from the northwest end of Sprackling island, and has deep water a short distance from the north side.

A rock lies between it and Bartlett rock, and shoals nearly fill the passage between it and Sprackling island.

Owl head island, 21 feet high, flat and bare, lies northwest of Middle island, separated by a clear channel 200 yards wide, and is bold-to within a short distance on all sides.

George harbor, south of Owl head island, is $\frac{1}{3}$ of a mile deep, and nearly 200 yards wide at the entrance, narrowing gradually to the head. A rock, with 6 feet water, lies just within the western head in the line of the west points, and is the only danger except close to the shore. Anchorage may be taken up as convenient in 4 fathoms, mud, but a heavy sea rolls in with the autumnal NE. gales.

Owl head is a conspicuous island 194 feet high, surmounted by a flagstaff, and with steep cliffs to all sides but the western, to which it slopes gradually. It is nearly joined to the two points of a cove north of it filled with bowlders, and nearly dry at low water. Otherwise the shores are steep-to.

Burke island, west of Owl head, is 112 feet high, dark in color, and separated from the mainland on the south side by a narrow channel fit for small craft only.

Penny harbor is entered between Owl head and Burke island through a channel 150 yards wide, and then trends to the southwestward between Burke island and the mainland north of it, but several rocks lie in this part, and the anchor should not be let go west of a small black rock just above high water lying close under a conical hill 150 feet high on the north shore. Harbor rock, that covers about 2 feet at high water, is the only danger in the entrance, is situated about 50 yards off Burke island, and may be avoided by keeping Black rock shut in with Owl head island. This mark will lead to the anchorage in $5\frac{1}{2}$ fathoms, mud, good holding ground. Conspicuous conical hills, 311 to 250 feet high, surround this harbor, separated by a marsh that reaches from the heads of George and Penny harbors to Salt pond.

Saunders island, 41 feet high, is nearly joined at low water to the north point of the shallow cove west of Owl head, but is steep-to on the north side.

Rocky bay extends W. a little more than a mile from Saunders island, and is $\frac{1}{3}$ of a mile wide at the entrance, expanding a little inside the entrance. There are no dangers except at a short distance off the islands at the head and near the shores. The head consists of two coves, the western of which is shoal.

Anchorage, with shelter in all winds but those from the east to south, may be had in 14 fathoms, mud, in the middle of the bay, and for small vessels in the northern cove at the head in 9 fathoms. Hills faced by

cliffs line the east shore, and a remarkable dark cone, 276 feet high, marks the east point of the entrance.

South Three islands lie in a line close under this cone along the southwest part of Partridge head, forming an open harbor where boats find shelter from off-shore winds. Between the western island, 50 feet high, and the main, is a shallow channel fit for boats only. The middle island, 88 feet high, is round in shape, and nearly joined to the western island by rocks. The eastern island, 56 feet high, is separated by clear channels 100 yards wide, both from the middle island and Partridge head. A rock, with 10 feet water, lies S. by W. $\frac{1}{2}$ W. 200 yards nearly from the western island. Duck islands, kept shut in with the Sugar loaf, leads south of this rock.

A small cove indents the cliff under Partridge head, in the middle of which is a deep gap separating a dark serrated hummock 243 feet high, surmounted by a flagstaff, from the table hill. This hummock slopes to a point of red rocks, whence the coast trends to the northwest $\frac{3}{4}$ of a mile to the entrance of Partridge bay.

American cove, a shallow boat creek, lies in the cove between these points, and may be recognized by the houses built round the shores.

The Sugar loaf, a conspicuous island, is surmounted by a dark cone 163 feet high, from which a reddish spur extends to the north extreme. It lies 400 yards off the south point of Partridge head, and is surrounded by shoals, the south point alone being bold-to.

Tommy rocks are three shoals on a bank extending $\frac{1}{2}$ of a mile SW. by W. from the middle of the north side of the Sugar loaf, narrowing the channel between it and Three islands to 300 yards. The eastern rock with 4 feet water lies 200 yards, and the western rock with 7 feet, $\frac{1}{2}$ of a mile nearly from the island, and the middle rock, with 4 fathoms, lies a little south of the line joining the two shoalest. The north point of Hiscock island, touching Partridge head and seen over the west end of the two black islets between Red and Flat islands, leads between these rocks and the mainland.

Billy rock, with 7 feet water, lies west 150 yards from the north point of the Sugar loaf, and a ledge extends NE. 150 yards from the eastern bill of the same point. Jersey bank, with 8 fathoms water, lies SSE. $\frac{1}{4}$ of a mile nearly from the Sugar loaf, and breaks in bad weather.

Bobby rocks consist of two round islets, and others small and flat, the highest 15 feet above high water, and may be approached to within 200 yards. A fishing bank lies close south of them with 11 fathoms water.

Directions.—Vessels bound to Comfort bight in bad weather should keep the summit of Hawke island open south of Bear island, until Bobby

rocks are in line with the Sugar loaf. Bobby rocks should be rounded and the Sugar loaf approached to 200 yards to clear Jersey bank. From this Owl head may be steered for, and the harbors entered. In moderate weather vessels may pass south of Black rock, steering for Owl head, but care must be taken of the Planter on the north side of the track, and Owl head must be opened off Owl head island, before Gull island touches Butler rocks, to keep clear of Harbor rock, when Owl head may be steered for.

In fine weather small vessels may proceed from Hill harbor in mid-channel between Big and Entry islands. From this channel a course NE. $1\frac{1}{2}$ miles will lead to Cox island, taking care to keep Black rock shut in with Cox island, to avoid the Hump and the Feather Bed on the south hand, and the shoal with $4\frac{1}{2}$ fathoms off Salt pond on the north side. Pass midway between Cox island and Cobbler rock, and between the mainland and the nearest group of rocks till Gull island is reached, when a course should be steered to pass midway between Butler and Little Black rocks, keeping Gull island open of Butler rocks, until Owl head is open off Owl head island, when Harbor rock will be passed, and Owl head may be steered for.

Red island, small and 55 feet high, is the western of a group of islands covered with grass over reddish rock, stretching east from Partridge head, and it is bold to on the north and west sides.

A low black islet lies close to the east extreme, and 100 yards further east is a similar islet, off which a rock with 8 feet lies N. $\frac{1}{4}$ E. 100 yards.

The passage between these islets is that ordinarily used by the local fishing craft, and is deep, but a stranger taking this channel should keep Bobby rocks in sight between the two islets to avoid the rock.

Flat island, 65 feet high, is situated a quarter of a mile to the north-eastward of Red island, and a small round islet lies a short distance east of it.

A shoal, with $4\frac{1}{2}$ fathoms water, lies S. $\frac{1}{4}$ E. 200 yards nearly from the south point of Flat island, and Flat island bank, with 6 feet water, is the shoalest part of a bank, 150 yards from the north point.

Duck islands lie one-third of a mile to the eastward of Flat island, and consist of three principal and several smaller islands and rocks, leaving no passage between them for a stranger.

Duck island, the largest, is surmounted at the east end by a round hill, 99 feet high, falls in steep cliffs to the southward and to rugged points on the north side.

Flat island rock, with 5 feet water, lies nearly in mid-channel between Flat and Duck islands at one-quarter of a mile from the former.

Little Duck island, the easternmost of the group, is darker than the rest, and 51 feet high. A rock, awash at low water, lies 200 yards SE.

of Little Duck island, and a shoal with 7 feet water, 100 yards S. from the rock.

Hiscock islands are a group situated north of Duck islands, and there is a good channel between, avoiding the rocks described.

Eastern islands are the most seaward of this group, and consist of three bare rocks, the highest and most eastern 24 feet above high water.

A rock, with 9 feet water, lies NE. by E. $\frac{1}{2}$ E. 150 yards from the highest island.

Fling islands are situated 200 yards from Eastern islands, the highest being 141 feet above high water.

Webber rock, with 13 feet water, lies E. $\frac{1}{2}$ S. 250 yards from the south point of these islands.

Big Pig island, 86 feet high, and bare, is 300 yards north of Fling islands, with Crocker island, small and low, close east of it.

Mad Moll, covering one foot at high water, lies in mid-channel between Fling and Big Pig islands. Small vessels may pass on either side of this rock, keeping the middle of the passages.

Hiscock island is surmounted by a dark serrated cone 147 feet high, has a small cove on the north shore, where a few fishermen establish themselves, and a low rock close to the southwest point, but may be approached to a short distance.

There is a clear channel between Hiscock and Fling islands, and also between the former and Big Pig island.

Little Pig island is connected by shoal water to the west side of Big Pig island and is 32 feet high. A rock awash at high water lies a short distance from the north extreme, and there is a fringe of shoal water round the shores.

Walker island, the northern of the group, is 107 feet high, dark and pyramidal in shape. The channel between it and Hiscock island is shallow, but the north shore is steep-to.

Nancy island, W. $\frac{1}{2}$ N. 350 yards from Hiscock island, with a clear passage between, is 12 feet high and flat. It may be approached to 100 yards on all sides but the southwest, from which a shoal extends, ending in a black rock that covers 2 feet, and is situated WSW. $\frac{1}{2}$ W. 150 yards from Nancy island.

Hare island, 350 yards NW. $\frac{1}{2}$ N. of Walker island, is covered with dark brush and surmounted by a small top 209 feet above high water, sloping steeply to the eastward, and gradually on all other sides. A rock that covers lies a short distance off a cove on the south side, and a small narrow islet, 22 feet above high water, lies close off the east side, inside which some rocks extend from Hare island.

Little Hare island, 109 feet high, is dark and round, nearly joined to the northwest side of Hare island, but bold-to on the west side.

A reef extends NW. 100 yards from the east point.

Green islands consist of a long rock and a conical mound 22 feet high, joined by rocks covered with grass, and with foul ground extending 100 yards from all sides but the east. The passage between these and Hare island should not be taken.

An islet, 12 feet above high water, lies one-fourth of a mile west of Hare island, from which a reef extends NNE. $\frac{1}{2}$ E. 100 yards nearly, but is otherwise bold-to.

The east point of the entrance to Partridge bay is a low grassy hummock 24 feet high, sloping gradually from a high-wooded summit. A rock with 7 feet water lies 100 yards westward from this point.

The mainland trends to the northward, and has shoal water a short distance from the shore.

Gulnare islands are a small group, consisting of two principal islands, separated by a clear channel 150 yards wide from the mainland. The western island is dark, surmounted by three hills, the highest 107 feet high, falling steeply to the south shore and is bold-to. A small white islet nearly joins the west point.

The eastern island is barren in patches and consists of two dark cones, the northern 157 feet and the southern 80 feet high.

A round, gray, and bare island 50 feet high is joined at low water to the west side of the eastern island.

Two coves with shingle beaches lie west of these islands on the mainland. A small islet lies off the south point of these coves, and a sunken rock a short distance from the islet.

A bay half a mile deep is situated northwest of these islands, is $\frac{1}{2}$ mile wide at the entrance, narrowing gradually to the head, and affords good anchorage in 10 fathoms, mud. The south point of the entrance is faced by a shingle beach, off which bowlders dry at low water a distance of 100 yards, steep-to beyond a short distance, and the head of the bay is shoal, with sunken rocks, for 200 yards. Rocks that cover lie close off the low projection midway along the north shore. A bank, about 200 yards square, with 6 feet least water, lies in the middle of the bay in the line of the entrance points, and there is no passage for a large ship west of it. A shoal, with $4\frac{1}{2}$ fathoms water, lies S. by W. 150 yards from the east point of the entrance. The south point of Copper island, just open of Tickle island, leads east of the bank with 6 feet water and west of the other shoal, and when the north point of Tickle island touches the south point of Middle island, the center of the bay may be steered for and anchorage taken up as convenient.

Middle island, 30 feet high, is situated 135 yards from the north point of this bay. Shoals block the passage on either side of this is-

land for a vessel, but boats may enter keeping nearer the island than either shore.

Muddy bay, north of Middle island, is shoal and rocky. A pond at the head nearly extends to the head of Shoal bay only a short distance across a low marshy neck.

Tickle island, 700 yards long, and joined to the mainland at low water, is composed of a dark hill 66 feet high near the north end, and a lower hill to the southward that falls steeply to the east side. Between these hills is a low marsh, joining the heads of two shallow coves that extend from each side. A rock that covers lies 100 yards off the west side, and a shoal lies a short distance off the south point, but the east side is steep-to.

Frenchman run is the name given to the passage between Gulnar islands and the mainland and the north side, and Hare, Copper, and the other islands to the eastward, terminating when Corbet island is passed. This channel is much used in the early part of summer when ice blocks the outer tracks, is well sheltered, and contains several anchorages.

Frenchman harbor, entered immediately east of Tickle island is 800 yards deep, 400 yards wide at the entrance, narrowing gradually to the head, and contains no dangers except close to the shore.

Anchorage may be obtained by small vessels in 12 to 6 fathoms as convenient.

The mainland east of this harbor trends to the narrows between the mainland and Copper island, 150 yards wide, with 7 fathoms water in mid-channel.

The mainland shore is fringed by bowlders, and surmounted by a barren round hill 282 feet high, that falls in spurs on all sides. A steep bluff falling from a peaked hill 188 feet high, forms the turning point of the coast to the northward, and trends round a small cove, from which a rocky peninsula 139 feet high juts out, forming the south side of Sloop harbor.

A rock, that covers one foot at high water, lies off the south extreme of the peninsula, and is continued to the eastward 50 yards by shoal water, but is bold-to on the south side.

A rocky bank about 100 yards square, with 2 feet least water, lies SE. 300 yards from the bluff point. The south point of Dog island, touching the north point of Frenchman island, NE. $\frac{1}{2}$ N. leads north. Deepwater island, open south of Seine island, ESE. leads south; and the east fall of the peninsular forming Sloop harbor, in line with the west point of Frenchman island, N. by E. leads east of this shoal, which is the only danger in this part of the run.

Anchorage may be had in 14 fathoms between Copper island and the mainland as convenient.

Copper island, $1\frac{1}{2}$ miles long nearly, and half a mile wide generally, is surmounted by a range of hills, the highest near the east end, a small cone above the general flat outline and 193 feet above high water. The range falls abruptly to the south point, ending in a reddish cliff. Rocks lie a short distance off the points, but the island may be approached generally to within 100 yards.

A shoal, with 8 fathoms water, lies SE. a quarter of a mile from the south point of Copper island.

Fish island lies 225 yards east of Copper island, is steep to on the south and east sides, dark, flat at the summit, and 91 feet high.

Sugar loaf is nearly joined to the northeast side of Copper island, leaving a passage between fit for boats only. It is conical, and 92 feet high. Two small islets lie between Sugar loaf and Fish island leaving no passage between them for vessels. A small rock 1 foot high, lies 100 yards northeast of Fish island and is bold to the southward.

Seine island, 600 yards long, is conical, 47 feet high, and covered with grass. It is situated 300 yards northeast of Sugar loaf, and is nearly divided by two coves, round the western of which are a few houses. A rocky bank, with 6 feet least water, extends N. by E. $\frac{1}{2}$ E. 300 yards nearly from Seine island.

Little Pig island, 150 yards NE. $\frac{1}{2}$ E. of Seine island, is a quarter of a mile long, narrow, and surmounted by a conical hill 50 feet high. A rock lies nearly in mid-channel between Seine and Little Pig islands, and a small rock is close southeast of the later, but the island is steep to the eastward.

Frenchman island, 200 yards northwest of Seine island, and separated by a passage through which $4\frac{1}{2}$ fathoms can be carried, is $\frac{1}{2}$ of a mile long, and irregular in width and outline, having a dark conical hill 80 feet high at the south end, and a gray round hill about 50 feet high at the north end. The shores are fringed with rocks, but may be approached to 100 yards from the line of the points.

Sullivan island is conical and dark, 82 feet high, and separated by a shallow channel 100 yards wide from the northeast side of Frenchman island. A small rock lies close to the north point, and shoals lie close off the east points, but it may be passed at 100 yards to the eastward. The passage between this and the next group of islands to the eastward is clear.

Seal islands are a group $2\frac{1}{2}$ miles long lying east of the islands just described, and consist of three principal and a great number of smaller islands and rocks.

Tides.—It is high water, full and change, among the Seal islands at 6h. 39m. Springs rise $5\frac{1}{2}$ feet and neaps 4 feet.

The Ravens, a group of low rocks, are the southeasternmost of the islands, the highest being 18 feet above high water. No-man-land shoal, with 16 feet water, lies SSE. $\frac{1}{2}$ E. 300 yards from the westernmost of the Ravens, a shoal extends N. 200 yards nearly from the northernmost, and rocks with 3 feet water on them extend N. 200 yards from the highest of these rocks. There is a clear passage between the Ravens and Long island by keeping the latter close on board.

The Pippies, two shoals lying $\frac{1}{4}$ of a mile apart NW. and SE., have $6\frac{1}{4}$ and $8\frac{3}{4}$ fathoms water on them. The shoaler and northernmost is situated S. by W. $\frac{1}{4}$ W. $\frac{5}{8}$ of a mile from the southern of the Ravens. Page rock, with $8\frac{1}{2}$ fathoms, lies WNW. $\frac{1}{2}$ W. 270 yards from the northern of the Pippies.

Long island, next NW. of the Ravens, is nearly three-quarters of a mile long and 300 yards broad, has a flat summit 104 feet high near the south end, and several smaller elevations towards the north extreme. The sides generally are steep-to.

Crow island is lozenge-shaped, nearly a quarter of a mile long and 78 feet high, appearing as a sharp cone when seen from the north and south. It is 50 yards off the north point of Long island, and has some sunken rocks close off the south end.

Crow island rocks are two shoals with 11 feet water, lying 300 yards from the east side of Crow island, and 135 yards apart north and south. Maidens rock, with $7\frac{1}{2}$ fathoms water, lies NNE. $\frac{1}{4}$ E. 400 yards, and Northernman bank, with 8 fathoms water, NE. $\frac{1}{4}$ of a mile from the north point of Crow island.

Pollo rock, round, black, and 9 feet high, lies $\frac{1}{3}$ of a mile from the east side of Long island, and may be approached to 200 yards off the east and south sides.

Pollo sunkeners lie west 100 yards from Pollo rock, and always show by breakers. A shoal with $4\frac{3}{4}$ fathoms water, lies WNW. $\frac{1}{2}$ W. $\frac{1}{4}$ of a mile from Pollo rock, and a bank with 7 fathoms least water, lies one-third of the distance from Pollo rock to Long island.

American island, half a mile long, is covered with a series of hummocks, and may be recognized by flagstaffs and several white houses over a cove on the east side, in which anchorage may be had by small vessels in 3 fathoms, sand. A shoal lies close off the east point of the cove. A rock lies a short distance west of the south point of the island, and a rock, awash at low water, off the northwest point.

American Tickle, the passage between Long and American islands, may be taken by vessels drawing less than 18 feet water, by keeping the Long island shore close on board.

Bear islands, lying north of the entrance to American tickle, are four gray rocks, the highest and most eastern 17 feet above high water, and there is no passage between them. A shoal, with 10 feet water at the extreme, extends SE. 200 yards nearly from the southern island. Shoal water extends a short distance NE. $\frac{1}{2}$ E. from the highest, and a rock lies 100 yards NW. $\frac{1}{2}$ N. of the westernmost island.

Deepwater island, conical, grassy, and 38 feet high, lies 200 yards from the west side of American island. Thomas rock, with 13 feet water, is situated SW. $\frac{1}{2}$ W. 100 yards from it.

The Flats, a group of low islets, nearly join Deepwater to Seal islands, but may be approached to 200 yards off the west side.

Seal island, $1\frac{1}{4}$ miles long, is covered with ranges of dark hills, the highest near the south end 135 feet, and a dark mound over the northwest point 134 feet high. The northern summit is surmounted by a flagstaff, 98 feet above high water.

Seal island harbor, near the south extreme and fit for small schooners only, is entered from the south side of the island, and east of a peninsula, nearly disjoined from the island. Rocks, with 2 feet on them at low water, lie off the north point of the peninsula, leaving a narrow passage on each side with 15 feet in the western, and 9 feet in the eastern channel. A shoal lagoon nearly joins the head of the harbor with the north side of the island. Several white houses surround this harbor the residences of permanent settlers.

Hills harbor lies near the north end of Seal island, is formed by one large and several smaller islands, and is fit for a few schooners only. The south entrance is barred by rocks, but the northern is clear.

Gull island, 27 feet high, lies SE. of the southern entrance to the harbor, and has a small rock close to the south side.

The Brandies, a rocky bank 300 yards long N. and S. with two heads of 7 feet water, lies about 200 yards NE. $\frac{1}{2}$ E. of Gull island, and a small rock, with 12 feet water, lies E. $\frac{1}{4}$ of a mile from Gull island.

Matthews tickle, with 3 fathoms water, is a snug place for a few fishing schooners; it is formed by two islands on the north end of Seal island. A rock lies close off the west side of the larger island.

A bank, with $4\frac{1}{4}$ fathoms water, lies N. $\frac{3}{4}$ E. 250 yards from the north end of Seal islands.

Pike island, 40 feet high and dark in color, is nearly joined to the northwest point of Seal islands, and forms a sheltered place for fishing boats.

Parsons island, covered with grass over gray rock and 26 feet high, lies 250 yards off Seal island, and N. $\frac{1}{4}$ of a mile from Little Pig island.

Anchorage may be obtained south of this island in 11 fathoms with shelter from NE. winds, and between the reef off Seine island and Frenchman island in 16 to 11 fathoms with shelter from all others.

Loveridge island, NW. $\frac{1}{2}$ N. 150 yards from Parsons island, is grassy over gray rock, and 28 feet high. There is shallow water between these islands, and a rock that covers lies between Loveridge and Pike islands.

Two bare gray islets, the higher 8 feet above high water, are situated NW. $\frac{1}{2}$ N. 150 yards from Loveridge island, and are skirted by shoal water a short distance all around.

Davis rock, with 7 feet water on it, lies N. $\frac{3}{4}$ E. 350 yards from the higher of these islets. Seine island, open north of the islets S. $\frac{1}{2}$ E., leads west, and Black rock, touching the south point of Dog island NE. $\frac{1}{2}$ N., leads north of this rock.

Pig island, 45 feet high, is separated from the north point of Seal island by a clear channel 100 yards wide, is 400 yards long, and formed of reddish rock covered with grass.

Pigeon island, about 300 yards in diameter and 59 feet high, is like Pig island, in color and is separated from it by a clear channel 100 yards wide.

Flat island, 46 feet high and 150 yards SE. $\frac{1}{2}$ S. of Pigeon island, consists of three parts nearly separated from each other by gulches.

Sculpin rocks, are the termination of a chain of rocks extending one-third of a mile from the south point of Flat island. They cover 3 feet at high water, nearly always show breakers, and may be approached to within 200 yards.

Local craft proceeding to the anchorages north of Seal island run south of Sculpin rocks between them and the Brandies, and thence, keeping near Seal island, in mid-channel between Pig and Seal islands.

Sleepy island, small, white, and 40 feet high, lies NE. $\frac{1}{2}$ E. 200 yards from Pigeon islands.

Fox islands, E. $\frac{1}{2}$ S. 270 yards from Flat island, are both faced by whitish cliffs, and are flat in outline. The western is 85 feet high, and skirted by rocks 100 yards from the points on the west side. There is no passage between it and Sleepy island, a rock awash at high water, lying nearly in mid-channel. The eastern island has a red vein near the east end, and a brown spur near the south extreme is about 70 feet high, and divided by a clear channel 100 yards wide from the western island.

Smokers rock, low, black, and bold-to, lies close SE. of it. Southern bank, with $8\frac{1}{2}$ fathoms least water, lies a quarter of a mile SE. Razor-strap, with $9\frac{1}{2}$ fathoms, lies NE. $\frac{1}{4}$ mile nearly, and Sleepy island bank, with $8\frac{1}{2}$ fathoms, lies NW. $\frac{1}{3}$ of a mile from the eastern island.

Sloop harbor is entered WNW. $\frac{1}{2}$ W. three-quarters of a mile from the north end of Seal island, and extends in that direction $\frac{3}{4}$ of a mile. The entrance is 350 yards wide, and the head expands to $\frac{1}{10}$ of a mile. A low islet lies close to the south shore with a black rock close off it, and a rock, with 5 feet water on it, lies 100 yards NW. of the south point of the entrance. A low point juts out from the north shore at 600 yards from the mouth, beyond which vessels unacquainted with the place should not proceed, but will find anchorage in 6 fathoms east from it.

A reef, that covers 3 feet, lies S. $\frac{1}{2}$ W. 100 yards from that point, leaving a channel between through which schooners may pass to anchorage inside in $2\frac{1}{2}$ fathoms, mud.

A round island, about 30 feet high and covered with grass, lies in the middle of the harbor, and marks the limit of the line of 3 fathoms. Low rocks stretch off the west extreme, a rock with one foot water on it lies NW. 100 yards, and the water is all shoal west of the island.

Anchorage for small craft may be had off the cove southwest of the island in 3 fathoms, mud.

A white island, 26 feet high, is nearly joined at low water to the head of the harbor, and sunken rocks lie off the outer shores.

The coast trends N. by W. three-quarters of a mile from Sloop harbor, being steep to within a short distance and falling steeply from a range of hills 138 feet above high water. It then trends WNW. $\frac{1}{2}$ W. nearly one-third of a mile to the entrance to Punchbowl, and is indented by a deep cove, fronted by shallow water to the line of the points, and a small cove with a shingle beach at the head.

Punchbowl harbor is entered through a channel about 50 yards wide with rocks a short distance off the north shore. Immediately within the entrance the harbor expands into the shape of an irregular isosceles triangle, the base $\frac{5}{8}$ of a mile and the other sides nearly half a mile long. Rocks stretch off the southwest point of the entrance immediately within the narrows, and the angles of the bay are shallow, but afford excellent anchorage for small schooners drawing 7 feet or less water in any part of the harbor, the bottom being of soft mud from the center to the western shore, but rocky near the east side. Anchorage for larger vessels may be had from the entrance, till the point, on which the houses are situated bears NW. $\frac{1}{4}$ N., in $3\frac{1}{2}$ to 5 fathoms, beyond which the water shoals suddenly.

Directions.—To enter: Mid-channel must be kept on entering, and slightly nearer the north shore when at the west end of the narrows, keeping the summit of Bradbury island just open north of the west side of the narrows, to clear the rocks extending from it into the harbor.

The land on the north side of Punchbowl falls in a series of hummocks from a flat-topped hill 254 feet high that slopes to Shoal bay on the west side.

The coast extends northwesterly $\frac{1}{2}$ of a mile to Turner head, a bold point under a conical hillock, the intervening space consisting of two shallow coves with rocks in them, but having deep water 200 yards from the shore.

The coast from Turner head turns a little to the westward for nearly a mile, to Shoal bay head south of the entrance to that bay, embracing a bay filled with two islets and numerous shoals requiring skillful navigation even for a boat at low water. The point east of the entrance to Punchbowl, well open of Turner head, leads south of these shoals.

Dog island, with a small flat summit 188 feet high and yellowish-green slopes, lies a quarter of a mile off the mainland between Sloop harbor and Punchbowl. It is half a mile in diameter, with a remarkable bluff on the east side. A narrow islet, 300 yards long and 7 feet high, lies 200 yards from the west side of Dog island. Between them the water is shallow, and from the channel between, a triangular shoal bank extends, the outer part, with 10 feet water, being SW. $\frac{1}{2}$ W. 150 yards from the islet. The fishing stage in the cove between the two parts of Corbet island, open north of the islet, leads west of this shoal. The north point of Dog island is a low hillock surmounted by a flagstaff. Two dark islets, 5 feet high, lie off the south end, and have deep water 100 yards from them. A white island, 22 feet high, lies close to the east point, and a group of islands, with shallow water between, stretches to the eastward from Dog island.

Big Pig island, 130 feet high, the most eastern of the group, has dark herbage over grayish rocks, and white veins running transversely across the east end. It is conical with cliff faces on the northeast side, and bold-to within a short distance of the east and south sides.

White point bank, with $5\frac{1}{2}$ fathoms least water, lies SSW. 400 yards from the south point of Big Pig island.

Harbor rock, 1 foot above high water, lies WNW. $\frac{1}{2}$ W. $\frac{1}{2}$ of a mile from the north point of Big Pig island, and is bold-to on all sides but the west. The passage between this rock and Big Pig island should not be taken, as a rock with 10 feet water lies midway between the rock and the north point of the island, and the bay formed by that point and the islands off the northwest point of Dog island is foul.

Rogers island is the most northern of the two lying off the northwest point of Dog island, is 34 feet high, covered with grass over white rock, and is bold-to on the north side only. Both islands are joined together and to Dog island by shallow water and rocks, and shoal water extends a short distance west of the line of the points of the two smaller islands.

Corbet island, the largest of this group off the mainland, is $1\frac{1}{4}$ miles long and nearly a mile broad, consisting of two high parts joined by a low neck of land about 40 yards wide. The eastern part is of dark rock surmounted by a flat summit 232 feet above high water, sloping gently

to the southward, towards the east side in a series of hummocks ending in two curious mounds, and with steep falls to the northward. The western part, of reddish gray rock, is flat in outline, 152 feet high, and nearly subdivided by a deep cove that extends to within 70 yards of Orleans, the narrow arm dividing the two main portions of Corbet island. The projection thus formed is dark and cliffy.

Solomon rock, with 2 feet water, is the extreme of a ledge extending 150 yards from the west shore of Corbet island. The summit of Green island, in line with the south extreme of the eastern Deepwater island, leads north of this rock.

A ledge extends 200 yards from the south extreme of the western part of Corbet island.

Keefe island lies 200 yards from the south end of the eastern part, is about 40 feet high, and nearly joined by rocks to Corbet island, and forms the west side of Corbet harbor. A rock, with 7 feet water, lies 100 yards southwest of the south point of Keefe island.

Bryan island, 82 feet high, forms the east side of Corbet harbor, and is nearly joined to Corbet island, leaving a narrow channel, with 3 fathoms water in it, close to the latter. The other sides of Bryan island may be approached to within 100 yards.

The Sisters, small islets 8 feet high, lie close off the east point of Corbet island, and are bold-to on the east side.

Tom Cod rock covers one foot, lies SE. by E. $\frac{1}{2}$ E. 200 yards from the Sisters, and is skirted by shoal water.

The Bantam, with 11 feet water, lies NW. $\frac{1}{2}$ N. 350 yards from the Sisters.

Herring cove, a deep open indentation 300 yards wide, extends $\frac{1}{4}$ of a mile into the north side of Corbet island.

Orleans arm, west of Herring cove, is the arm that nearly divides Corbet island into two portions. It is $\frac{1}{6}$ of a mile deep and 200 yards wide at the entrance, narrowing gradually to the head. This place is rarely used, even by fishing craft, as a heavy sea sets in with easterly winds.

Webber harbor, west of Orleans arm, is divided from the latter by a dark peninsula and Lea island, nearly joined to it, which is 105 feet high, dark, cliffy, and bold-to. The harbor is nearly $\frac{1}{2}$ mile deep, 135 yards broad, and affords indifferent anchorage for fishing craft in $5\frac{1}{2}$ fathoms opposite the channel between Lea island and the peninsula, or farther up in $1\frac{1}{2}$ fathoms.

North Crow island, of curiously speckled black and white rock, 106 feet high, lies 150 yards from the east point of Corbet island. A

of Little Duck island, and a shoal with 7 feet water, 100 yards S. from the rock.

Hiscock islands are a group situated north of Duck islands, and there is a good channel between, avoiding the rocks described.

Eastern islands are the most seaward of this group, and consist of three bare rocks, the highest and most eastern 24 feet above high water.

A rock, with 9 feet water, lies NE. by E. $\frac{1}{2}$ E. 150 yards from the highest island.

Fling islands are situated 200 yards from Eastern islands, the highest being 141 feet above high water.

Webber rock, with 13 feet water, lies E. $\frac{1}{2}$ S. 250 yards from the south point of these islands.

Big Pig island, 86 feet high, and bare, is 300 yards north of Fling islands, with Crocker island, small and low, close east of it.

Mad Moll, covering one foot at high water, lies in mid-channel between Fling and Big Pig islands. Small vessels may pass on either side of this rock, keeping the middle of the passages.

Hiscock island is surmounted by a dark serrated cone 147 feet high, has a small cove on the north shore, where a few fishermen establish themselves, and a low rock close to the southwest point, but may be approached to a short distance.

There is a clear channel between Hiscock and Fling islands, and also between the former and Big Pig island.

Little Pig island is connected by shoal water to the west side of Big Pig island and is 32 feet high. A rock awash at high water lies a short distance from the north extreme, and there is a fringe of shoal water round the shores.

Walker island, the northern of the group, is 107 feet high, dark and pyramidal in shape. The channel between it and Hiscock island is shallow, but the north shore is steep-to.

Nancy island, W. $\frac{1}{2}$ N. 350 yards from Hiscock island, with a clear passage between, is 12 feet high and flat. It may be approached to 100 yards on all sides but the southwest, from which a shoal extends, ending in a black rock that covers 2 feet, and is situated WSW. $\frac{1}{2}$ W. 150 yards from Nancy island.

Hare island, 350 yards NW. $\frac{1}{2}$ N. of Walker island, is covered with dark brush and surmounted by a small top 209 feet above high water, sloping steeply to the eastward, and gradually on all other sides. A rock that covers lies a short distance off a cove on the south side, and a small narrow islet, 22 feet above high water, lies close off the east side, inside which some rocks extend from Hare island.

Little Hare island, 109 feet high, is dark and round, nearly joined to the northwest side of Hare island, but bold-to on the west side.

A reef extends NW. 100 yards from the east point.

Green islands consist of a long rock and a conical mound 22 feet high, joined by rocks covered with grass, and with foul ground extending 100 yards from all sides but the east. The passage between these and Hare island should not be taken.

An islet, 12 feet above high water, lies one-fourth of a mile west of Hare island, from which a reef extends NNE. $\frac{1}{2}$ E. 100 yards nearly, but is otherwise bold-to.

The east point of the entrance to Partridge bay is a low grassy hummock 24 feet high, sloping gradually from a high-wooded summit. A rock with 7 feet water lies 100 yards westward from this point.

The mainland trends to the northward, and has shoal water a short distance from the shore.

Gulnare islands are a small group, consisting of two principal islands, separated by a clear channel 150 yards wide from the mainland. The western island is dark, surmounted by three hills, the highest 107 feet high, falling steeply to the south shore and is bold-to. A small white islet nearly joins the west point.

The eastern island is barren in patches and consists of two dark cones, the northern 157 feet and the southern 80 feet high.

A round, gray, and bare island 50 feet high is joined at low water to the west side of the eastern island.

Two coves with shingle beaches lie west of these islands on the mainland. A small islet lies off the south point of these coves, and a sunken rock a short distance from the islet.

A bay half a mile deep is situated northwest of these islands, is $\frac{1}{2}$ mile wide at the entrance, narrowing gradually to the head, and affords good anchorage in 10 fathoms, mud. The south point of the entrance is faced by a shingle beach, off which boulders dry at low water a distance of 100 yards, steep-to beyond a short distance, and the head of the bay is shoal, with sunken rocks, for 200 yards. Rocks that cover lie close off the low projection midway along the north shore. A bank, about 200 yards square, with 6 feet least water, lies in the middle of the bay in the line of the entrance points, and there is no passage for a large ship west of it. A shoal, with $4\frac{1}{2}$ fathoms water, lies S. by W. 150 yards from the east point of the entrance. The south point of Copper island, just open of Tickle island, leads east of the bank with 6 feet water and west of the other shoal, and when the north point of Tickle island touches the south point of Middle island, the center of the bay may be steered for and anchorage taken up as convenient.

Middle island, 30 feet high, is situated 135 yards from the north point of this bay. Shoals block the passage on either side of this is-

land for a vessel, but boats may enter keeping nearer the island than either shore.

Muddy bay, north of Middle island, is shoal and rocky. A pond at the head nearly extends to the head of Shoal bay only a short distance across a low marshy neck.

Tickle island, 700 yards long, and joined to the mainland at low water, is composed of a dark hill 66 feet high near the north end, and a lower hill to the southward that falls steeply to the east side. Between these hills is a low marsh, joining the heads of two shallow coves that extend from each side. A rock that covers lies 100 yards off the west side, and a shoal lies a short distance off the south point, but the east side is steep-to.

Frenchman run is the name given to the passage between Gulnare islands and the mainland and the north side, and Hare, Copper, and the other islands to the eastward, terminating when Corbet island is passed. This chaunel is much used in the early part of summer when ice blocks the outer tracks, is well sheltered, and contains several anchorages.

Frenchman harbor, entered immediately east of Tickle island is 800 yards deep, 400 yards wide at the entrance, narrowing gradually to the head, and contains no dangers except close to the shore.

Anchorage may be obtained by small vessels in 12 to 6 fathoms as convenient.

The mainland east of this harbor trends to the narrows between the mainland and Copper island, 150 yards wide, with 7 fathoms water in mid-channel.

The mainland shore is fringed by bowlders, and surmounted by a barren round hill 282 feet high, that falls in spurs on all sides. A steep bluff falling from a peaked hill 188 feet high, forms the turning point of the coast to the northward, and trends round a small cove, from which a rocky peninsula 139 feet high juts out, forming the south side of Sloop harbor.

A rock, that covers one foot at high water, lies off the south extreme of the peninsula, and is continued to the eastward 50 yards by shoal water, but is bold-to on the south side.

A rocky bank about 100 yards square, with 2 feet least water, lies SE. 300 yards from the bluff point. The south point of Dog island, touching the north point of Frenchman island, NE. $\frac{1}{2}$ N. leads north, Deepwater island, open south of Seine island, ESE. leads south; and the east fall of the peninsular forming Sloop harbor, in line with the west point of Frenchman island, N. by E. leads east of this shoal, which is the only danger in this part of the run.

Anchorage may be had in 14 fathoms between Copper island and the mainland as covenant.

Copper island, $1\frac{1}{2}$ miles long nearly, and half a mile wide generally, is surmounted by a range of hills, the highest near the east end, a small cone above the general flat outline and 193 feet above high water. The range falls abruptly to the south point, ending in a reddish cliff. Rocks lie a short distance off the points, but the island may be approached generally to within 100 yards.

A shoal, with 8 fathoms water, lies SE. a quarter of a mile from the south point of Copper island.

Fish island lies 225 yards east of Copper island, is steep to on the south and east sides, dark, flat at the summit, and 91 feet high.

Sugar loaf is nearly joined to the northeast side of Copper island, leaving a passage between fit for boats only. It is conical, and 92 feet high. Two small islets lie between Sugar loaf and Fish island leaving no passage between them for vessels. A small rock 1 foot high, lies 100 yards northeast of Fish island and is bold to the southward.

Seine island, 600 yards long, is conical, 47 feet high, and covered with grass. It is situated 300 yards northeast of Sugar loaf, and is nearly divided by two coves, round the western of which are a few houses. A rocky bank, with 6 feet least water, extends N. by E. $\frac{1}{2}$ E. 300 yards nearly from Seine island.

Little Pig island, 150 yards NE. $\frac{1}{2}$ E. of Seine island, is a quarter of a mile long, narrow, and surmounted by a conical hill 50 feet high. A rock lies nearly in mid-channel between Seine and Little Pig islands, and a small rock is close southeast of the later, but the island is steep to the eastward.

Frenchman island, 200 yards northwest of Seine island, and separated by a passage through which $4\frac{3}{4}$ fathoms can be carried, is $\frac{5}{8}$ of a mile long, and irregular in width and outline, having a dark conical hill 80 feet high at the south end, and a gray round hill about 50 feet high at the north end. The shores are fringed with rocks, but may be approached to 100 yards from the line of the points.

Sullivan island is conical and dark, 82 feet high, and separated by a shallow channel 100 yards wide from the northeast side of Frenchman island. A small rock lies close to the north point, and shoals lie close off the east points, but it may be passed at 100 yards to the eastward. The passage between this and the next group of islands to the eastward is clear.

Seal islands are a group $2\frac{1}{2}$ miles long lying east of the islands just described, and consist of three principal and a great number of smaller islands and rocks.

Pigeon Island, 200 yards in diameter, 29 feet high and flat, lies NW. by W., $\frac{1}{2}$ W. $\frac{6}{10}$ of a mile from Goss island and 600 yards from the north promontory of Shoal bay island. Low islets lie south of it and shoal water surrounds it for a distance of 200 yards.

A shoal, with $4\frac{1}{2}$ fathoms water, lies NE. $\frac{1}{2}$ E. 300 yards nearly, and Taylor bank, with 5 fathoms, lies N. $\frac{3}{4}$ E. $\frac{1}{3}$ of a mile from Pigeon island.

Black Bear bay, to the westward of these islands, is about 2 miles in depth and $\frac{3}{4}$ of a mile in width. Good anchorage can be obtained in this bay in a depth of 14 fathoms, with a small waterfall on the north shore bearing N. $\frac{1}{2}$ W. There is deep water to the head of the bay, where there is a small settlement, off which vessels can anchor.

River.—A rapid river falls into the head of Black Bear bay; water can be obtained from the waterfall.

Bed head, dividing Black Bear and Open bays, is flat in outline, falling steeply to the eastward and northward, and with shoal water extending a quarter of a mile from the east point.

Salter islands lie close off this head, the smaller white and bare, just west of the extreme, and the larger 55 feet high, covered with dark herbage over gray rock, lying south of the extreme. A small spit extends from the east point, a low islet lies close off the east side and some low rocks near the south point. This island is nearly joined at the west extreme to the mainland by rocks and shoal water, but fishing craft find good shelter east of them, between the island and Bed head, in $2\frac{1}{2}$ fathoms.

A bank, with $5\frac{1}{2}$ fathoms least water, lies NE. $\frac{1}{2}$ E. a quarter of a mile from the south end of the larger island.

Run island lies $\frac{1}{3}$ of a mile NE. $\frac{1}{2}$ E. of Bed head, the channel between carrying 5 to 7 fathoms and affording anchorage with shelter from westerly winds. It is 55 feet high, covered with grass over reddish rock, has a small rock close to the west end, and is connected to Sandy islands, a quarter of a mile to the eastward, by shoal water.

Sandy islands are a group of one large and several smaller islands, forming between them on the east side Sandy islands harbor, a rocky bight completely exposed to easterly winds. The largest island forms the north and west side of the group and is composed of a number of hillocks (the highest 88 feet, sloping to the harbor) joined together by marshes. A cove, 350 yards deep, lies on the northwest side with a white sand beach at the head, and gives good shelter for fishing boats. A considerable settlement is formed here during summer.

The southern island has dark turf over gray cliff, is 65 feet high, and separated from the largest island by a channel just wide enough for boats to go through at half tide. The other islands lie off the north-

Bear islands, lying north of the entrance to American tickle, are four gray rocks, the highest and most eastern 17 feet above high water, and there is no passage between them. A shoal, with 10 feet water at the extreme, extends SE. 200 yards nearly from the southern island. Shoal water extends a short distance NE. $\frac{1}{2}$ E. from the highest, and a rock lies 100 yards NW. $\frac{1}{2}$ N. of the westernmost island.

Deepwater island, conical, grassy, and 38 feet high, lies 200 yards from the west side of American island. Thomas rock, with 13 feet water, is situated SW. $\frac{1}{2}$ W. 100 yards from it.

The Flats, a group of low islets, nearly join Deepwater to Seal islands, but may be approached to 200 yards off the west side.

Seal island, $1\frac{1}{2}$ miles long, is covered with ranges of dark hills, the highest near the south end 135 feet, and a dark mound over the northwest point 134 feet high. The northern summit is surmounted by a flag-staff, 98 feet above high water.

Seal island harbor, near the south extreme and fit for small schooners only, is entered from the south side of the island, and east of a peninsula, nearly disjoined from the island. Rocks, with 2 feet on them at low water, lie off the north point of the peninsula, leaving a narrow passage on each side with 15 feet in the western, and 9 feet in the eastern channel. A shoal lagoon nearly joins the head of the harbor with the north side of the island. Several white houses surround this harbor the residences of permanent settlers.

Hills harbor lies near the north end of Seal island, is formed by one large and several smaller islands, and is fit for a few schooners only. The south entrance is barred by rocks, but the northern is clear.

Gull island, 27 feet high, lies SE. of the southern entrance to the harbor, and has a small rock close to the south side.

The Brandies, a rocky bank 300 yards long N. and S. with two heads of 7 feet water, lies about 200 yards NE. $\frac{1}{2}$ E. of Gull island, and a small rock, with 12 feet water, lies E. $\frac{1}{4}$ of a mile from Gull island.

Matthews tickle, with 3 fathoms water, is a snug place for a few fishing schooners; it is formed by two islands on the north end of Seal island. A rock lies close off the west side of the larger island.

A bank, with $4\frac{1}{4}$ fathoms water, lies N. $\frac{3}{4}$ E. 250 yards from the north end of Seal islands.

Pike island, 40 feet high and dark in color, is nearly joined to the northwest point of Seal islands, and forms a sheltered place for fishing boats.

Parsons island, covered with grass over gray rock and 26 feet high, lies 250 yards off Seal island, and N. $\frac{1}{4}$ of a mile from Little Pig island.

Anchorage may be obtained south of this island in 11 fathoms with shelter from NE. winds, and between the reef off Seine island and Frenchman island in 16 to 11 fathoms with shelter from all others.

Loveridge island, NW. $\frac{1}{2}$ N. 150 yards from Parsons island, is grassy over gray rock, and 28 feet high. There is shallow water between these islands, and a rock that covers lies between Loveridge and Pike islands.

Two bare gray islets, the higher 8 feet above high water, are situated NW. $\frac{1}{2}$ N. 150 yards from Loveridge island, and are skirted by shoal water a short distance all around.

Davis rock, with 7 feet water on it, lies N. $\frac{3}{4}$ E. 350 yards from the higher of these islets. Seine island, open north of the islets S. $\frac{1}{2}$ E., leads west, and Black rock, touching the south point of Dog island NE. $\frac{1}{2}$ N., leads north of this rock.

Pig island, 45 feet high, is separated from the north point of Seal island by a clear channel 100 yards wide, is 400 yards long, and formed of reddish rock covered with grass.

Pigeon island, about 300 yards in diameter and 59 feet high, is like Pig island, in color and is separated from it by a clear channel 100 yards wide.

Flat island, 46 feet high and 150 yards SE. $\frac{1}{2}$ S. of Pigeon island, consists of three parts nearly separated from each other by gulches.

Sculpin rocks, are the termination of a chain of rocks extending one-third of a mile from the south point of Flat island. They cover 3 feet at high water, nearly always show breakers, and may be approached to within 200 yards.

Local craft proceeding to the anchorages north of Seal island run south of Sculpin rocks between them and the Brandies, and thence, keeping near Seal island, in mid-channel between Pig and Seal islands.

Sleepy island, small, white, and 40 feet high, lies NE. $\frac{1}{2}$ E. 200 yards from Pigeon islands.

Fox islands, E. $\frac{1}{2}$ S. 270 yards from Flat island, are both faced by whitish cliffs, and are flat in outline. The western is 85 feet high, and skirted by rocks 100 yards from the points on the west side. There is no passage between it and Sleepy island, a rock awash at high water, lying nearly in mid-channel. The eastern island has a red vein near the east end, and a brown spur near the south extreme is about 70 feet high, and divided by a clear channel 100 yards wide from the western island.

Smokers rock, low, black, and bold-to, lies close SE. of it. Southern bank, with $8\frac{1}{2}$ fathoms least water, lies a quarter of a mile SE. Razor-strap, with $9\frac{1}{2}$ fathoms, lies NE. $\frac{1}{4}$ mile nearly, and Sleepy island bank, with $8\frac{1}{2}$ fathoms, lies NW. $\frac{1}{3}$ of a mile from the eastern island.

Sloop harbor is entered WNW. $\frac{1}{2}$ W. three-quarters of a mile from the north end of Seal island, and extends in that direction $\frac{3}{4}$ of a mile. The entrance is 350 yards wide, and the head expands to $\frac{1}{4}$ of a mile. A low islet lies close to the south shore with a black rock close off it, and a rock, with 5 feet water on it, lies 100 yards NW. of the south point of the entrance. A low point juts out from the north shore at 600 yards from the mouth, beyond which vessels unacquainted with the place should not proceed, but will find anchorage in 6 fathoms east from it.

A reef, that covers 3 feet, lies S. $\frac{1}{2}$ W. 100 yards from that point, leaving a channel between through which schooners may pass to anchorage inside in $2\frac{1}{2}$ fathoms, mud.

A round island, about 30 feet high and covered with grass, lies in the middle of the harbor, and marks the limit of the line of 3 fathoms. Low rocks stretch off the west extreme, a rock with one foot water on it lies NW. 100 yards, and the water is all shoal west of the island.

Anchorage for small craft may be had off the cove southwest of the island in 3 fathoms, mud.

A white island, 26 feet high, is nearly joined at low water to the head of the harbor, and sunken rocks lie off the outer shores.

The coast trends N. by W. three-quarters of a mile from Sloop harbor, being steep to within a short distance and falling steeply from a range of hills 138 feet above high water. It then trends WNW. $\frac{1}{2}$ W. nearly one-third of a mile to the entrance to Punchbowl, and is indented by a deep cove, fronted by shallow water to the line of the points, and a small cove with a shingle beach at the head.

Punchbowl harbor is entered through a channel about 50 yards wide with rocks a short distance off the north shore. Immediately within the entrance the harbor expands into the shape of an irregular isosceles triangle, the base $\frac{3}{4}$ of a mile and the other sides nearly half a mile long. Rocks stretch off the southwest point of the entrance immediately within the narrows, and the angles of the bay are shallow, but afford excellent anchorage for small schooners drawing 7 feet or less water in any part of the harbor, the bottom being of soft mud from the center to the western shore, but rocky near the east side. Anchorage for larger vessels may be had from the entrance, till the point on which the houses are situated bears NW. $\frac{1}{4}$ N., in $3\frac{1}{2}$ to 5 fathoms, beyond which the water shoals suddenly.

Directions.—To enter: Mid-channel must be kept on entering, and slightly nearer the north shore when at the west end of the narrows, keeping the summit of Bradbury island just open north of the west side of the narrows, to clear the rocks extending from it into the harbor.

The land on the north side of Punchbowl falls in a series of hummocks from a flat-topped hill 254 feet high that slopes to Shoal bay on the west side.

The coast extends northwesterly $\frac{1}{2}$ of a mile to Turner head, a bold point under a conical hillock, the intervening space consisting of two shallow coves with rocks in them, but having deep water 200 yards from the shore.

The coast from Turner head turns a little to the westward for nearly a mile, to Shoal bay head south of the entrance to that bay, embracing a bay filled with two islets and numerous shoals requiring skillful navigation even for a boat at low water. The point east of the entrance to Punchbowl, well open of Turner head, leads south of these shoals.

Dog island, with a small flat summit 188 feet high and yellowish-green slopes, lies a quarter of a mile off the mainland between Sloop harbor and Punchbowl. It is half a mile in diameter, with a remarkable bluff on the east side. A narrow islet, 300 yards long and 7 feet high, lies 200 yards from the west side of Dog island. Between them the water is shallow, and from the channel between, a triangular shoal bank extends, the outer part, with 10 feet water, being SW. $\frac{1}{2}$ W. 150 yards from the islet. The fishing stage in the cove between the two parts of Corbet island, open north of the islet, leads west of this shoal. The north point of Dog island is a low hillock surmounted by a flagstaff. Two dark islets, 5 feet high, lie off the south end, and have deep water 100 yards from them. A white island, 22 feet high, lies close to the east point, and a group of islands, with shallow water between, stretches to the eastward from Dog island.

Big Pig island, 130 feet high, the most eastern of the group, has dark herbage over grayish rocks, and white veins running transversely across the east end. It is conical with cliff faces on the northeast side, and bold-to within a short distance of the east and south sides.

White point bank, with $5\frac{1}{2}$ fathoms least water, lies SSW. 400 yards from the south point of Big Pig island.

Harbor rock, 1 foot above high water, lies WNW. $\frac{1}{2}$ W. $\frac{1}{3}$ of a mile from the north point of Big Pig island, and is bold-to on all sides but the west. The passage between this rock and Big Pig island should not be taken, as a rock with 10 feet water lies midway between the rock and the north point of the island, and the bay formed by that point and the islands off the northwest point of Dog island is foul.

Rogers island is the most northern of the two lying off the northwest point of Dog island, is 34 feet high, covered with grass over white rock, and is bold-to on the north side only. Both islands are joined together and to Dog island by shallow water and rocks, and shoal water extends a short distance west of the line of the points of the two smaller islands.

Corbet island, the largest of this group off the mainland, is $1\frac{1}{4}$ miles long and nearly a mile broad, consisting of two high parts joined by a low neck of land about 40 yards wide. The eastern part is of dark rock surmounted by a flat summit 232 feet above high water, sloping gently

to the southward, towards the east side in a series of hummocks ending in two curious mounds, and with steep falls to the northward. The western part, of reddish gray rock, is flat in outline, 152 feet high, and nearly subdivided by a deep cove that extends to within 70 yards of Orleans, the narrow arm dividing the two main portions of Corbet island. The projection thus formed is dark and cliffy.

Solomon rock, with 2 feet water, is the extreme of a ledge extending 150 yards from the west shore of Corbet island. The summit of Green island, in line with the south extreme of the eastern Deepwater island, leads north of this rock.

A ledge extends 200 yards from the south extreme of the western part of Corbet island.

Keefe island lies 200 yards from the south end of the eastern part, is about 40 feet high, and nearly joined by rocks to Corbet island, and forms the west side of Corbet harbor. A rock, with 7 feet water, lies 100 yards southwest of the south point of Keefe island.

Bryan island, 82 feet high, forms the east side of Corbet harbor, and is nearly joined to Corbet island, leaving a narrow channel, with 3 fathoms water in it, close to the latter. The other sides of Bryan island may be approached to within 100 yards.

The Sisters, small islets 8 feet high, lie close off the east point of Corbet island, and are bold-to on the east side.

Tom Cod rock covers one foot, lies SE. by E. $\frac{1}{2}$ E. 200 yards from the Sisters, and is skirted by shoal water.

The Bantam, with 11 feet water, lies NW. $\frac{1}{2}$ N. 350 yards from the Sisters.

Herring cove, a deep open indentation 300 yards wide, extends $\frac{1}{4}$ of a mile into the north side of Corbet island.

Orleans arm, west of Herring cove, is the arm that nearly divides Corbet island into two portions. It is $\frac{1}{6}$ of a mile deep and 200 yards wide at the entrance, narrowing gradually to the head. This place is rarely used, even by fishing craft, as a heavy sea sets in with easterly winds.

Webber harbor, west of Orleans arm, is divided from the latter by a dark peninsula and Lea island, nearly joined to it, which is 105 feet high, dark, cliffy, and bold-to. The harbor is nearly $\frac{1}{2}$ mile deep, 135 yards broad, and affords indifferent anchorage for fishing craft in $5\frac{1}{2}$ fathoms opposite the channel between Lea island and the peninsula, or farther up in $1\frac{1}{2}$ fathoms.

North Crow island, of curiously speckled black and white rock, 106 feet high, lies 150 yards from the east point of Corbet island. A

sunken rock lies in the fairway east of the channel between, leaving a narrow passage close to North Crow island. An islet, 5 feet high, lies close off the west point of the island, and from the point of Corbet island opposite to it islets and rocks extend to Bryan island.

A group of islands extends south and east of Corbet island nearly a mile.

Bradbury island, dark and cliffy, is separated by a clear channel 135 yards wide from Bryan island, through which 5 fathoms can be carried and by a channel 250 yards wide from the islets between North Crow and Bryan islands. It is generally flat in outline, the summit, 152 feet high, falling in steep cliffs to the eastward and gradually to the westward; the south end of the summit, a dark cone 140 feet high, is separated from the remainder by a slight valley. The island is steep-to within a short distance on all sides.

East Bradbury island, 92 feet high, is generally of dark rock, curiously striped with white bands on the seaward face. The channel between it and Bradbury island is 100 yards wide and free from danger, and the island is steep-to on all sides but the east, close off which are some low rocks. An islet, 4 feet above high water, with a sunken rock SE. by E. $\frac{1}{2}$ E. 100 yards from it, lies 200 yards NE. $\frac{1}{2}$ E. of East Bradbury island. Some low islets lie 150 yards SE. $\frac{1}{2}$ S. of East Bradbury island, continued to the north 250 yards by a shoal with $4\frac{1}{2}$ fathoms and south 150 yards by a reef.

Little Black rocks, about 20 feet high, lie 250 yards SE. $\frac{1}{2}$ S. of these islets, and from them a ledge that breaks extends a short distance south, but the passage between the islets just described and Little Black rocks is clear in mid-channel.

Black rock, 66 feet high, is dark, conical, and bold-to on the east and north sides. This rock is the southern of the group, and from shape and color is conspicuous.

A rock, with 12 feet water, lies half way between it and Little Black rocks and a shoal with 4 fathoms water SSE. $\frac{1}{4}$ E. 250 yards nearly from Black rock.

Herring island, about 30 feet high, round and black, lies SE. by E. $\frac{1}{2}$ E. a quarter of a mile from North Crow island and is bold-to. A bank, with 16 feet least water, lies between it and East Bradbury island. Herring island rock, with 10 feet water, lies ENE. $\frac{1}{2}$ E. 350 yards from Herring island.

Pigeon island, NE. $\frac{1}{2}$ E. 400 yards from North Crow island, is 56 feet high, round and dark, with rocks close to the south extreme. A rock, with 9 feet water, lies SE. 225 yards from Pigeon island, and a rocky bank with depths from 3 feet to 3 fathoms, steep-to on the south

side, lies with the south extreme ENE. 200 yards from Pigeon island and trends NNW. 400 yards.

An islet, 2 feet above high water, lies east $\frac{1}{2}$ of a mile from Pigeon island, with a rock close to the south end and a shoal bank extending 200 yards from the north extreme.

Several fishing banks lie eastward of these islands; Middle bank, the shoalest, with 7 fathoms water, lying SE. $\frac{1}{4}$ E. $\frac{1}{2}$ of a mile from this islet; and Bet bank, the easternmost, with 12 fathoms water, S. by W. $\frac{1}{2}$ W. $\frac{1}{2}$ mile nearly from White rock.

White rock, 30 feet high, of grayish rock, lies east $\frac{1}{2}$ of a mile from Red island, and has shoal water a short distance off the north and south extremes. This rock is the easternmost of the group, and has several fishing banks off it, but none are dangerous.

Red island, 49 feet high, so called from the color of the rock, is round and bare, lying ENE. $\frac{1}{2}$ E. $\frac{1}{2}$ of a mile from the east point of Corbet island. A small islet lies close northwest of it, leaving no passage between, and the whole may be approached to within 200 yards.

South black rock, 7 feet high, lies N. a third of a mile from the Sisters, with shoal water off the west side, and a shoal with 12 feet lying SE. 200 yards from it.

Black rock bank, with 6 $\frac{1}{2}$ fathoms, lies N. by W. $\frac{1}{4}$ W. 350 yards from South Black rock.

Flat island, 19 feet high, bare and rugged, lies NE. $\frac{1}{2}$ E $\frac{1}{4}$ of a mile from Lea island, and is skirted by shoal water. The Pancake, a flat rock that covers 2 feet, lies 100 yards from the west extreme, and Quilty bank, with 6 $\frac{1}{2}$ fathoms, lies NE. $\frac{3}{4}$ N. 350 yards from Flat island.

North three islands, 400 yards north of Lea island, are a group sheltering a small harbor where boats can find shelter. The highest is covered with grass over reddish rock and shaped like a wedge, the summit, 110 feet high, over the west end. The two other islands are low and lie in a line 50 yards southeast of the highest, the western of the two being nearly connected to it. An island is nearly joined to the west end of the highest, and all have deep water a short distance from all sides but the east.

The Flats, an islet 18 feet high with shoal water a short distance off east and west extremes, lies 100 yards NE. of the highest of Three islands.

The Horse-shoe, a rocky bank with 5 feet least water and 200 yards long, lies parallel to the north side of the Flats and 100 yards distant.

Middle rock is a continuation of the Flats, 200 yards distant from the east extreme, has 12 feet least water, and is 200 yards in extent. Offer

rock, with 7 fathoms water, lies 135 yards in the same direction from Middle rock.

Clem bank, with $4\frac{1}{2}$ fathoms water, lies ENE. $\frac{1}{2}$ E. $\frac{1}{2}$ of a mile; **Toms knob**, with $3\frac{1}{2}$ fathoms, ENE. $\frac{1}{2}$ of a mile; and **Caleb shoal**, with 3 fathoms, NE. by E. $\frac{1}{2}$ E. 1 mile from the east extreme of the Flats.

Gurney island, 21 feet high and about 200 yards long, lies W. $\frac{1}{2}$ S. 400 yards from Three islands, and is steep-to.

Deepwater islands are covered with dark grass over gray cliffs, and are separated from the north side of Three islands by a deep channel 350 yards wide. Both islands are round and bluff, the eastern 55 feet high; the western, 200 yards from the eastern, is 102 feet high, and may be approached within a short distance from all sides.

American rock, 3 feet above high water, lies nearly $\frac{1}{2}$ mile to the northeastward of Deepwater island, and is bold-to on the south side. A rock that covers 4 feet, continued by shoal water a short distance to the northward, lies NE. $\frac{1}{2}$ N. 125 yards from American rock.

Green island is 350 yards long and 54 feet high, is covered with grass over gray rock, with a dark seam down the northeast face, and may be approached to a short distance from all sides but the north. A group of rocks lies close to the west end, 10 feet high and nearly steep-to.

Walker island, 250 yards long and 40 feet high, is situated NW. $\frac{1}{2}$ N. 400 yards from Green island. A rock lies nearly in mid-channel between them, and Walker rock, 2 feet above high water and skirted by shoal water, terminates this group to the northward.

A bank, with 5 fathoms least water, lies N. 400 yards from the east point of Green island.

Directions for Frenchman run.—From Comfort bight steer for the middle of the South Three islands, keeping that island, the eastern island, and the mainland, close on board to avoid Tommy and Billy rocks, then in mid-channel between Red island and Partridge head. A course N. by W. for one mile will lead to the islet 12 feet above high water nearly in the middle of the run, and about half way between Hare and Gulnare islands. Pass in mid-channel on either side of this islet, and steer for the middle of the run between Tickle and Copper islands. This position may be reached from seaward by passing in a channel free from danger except near the islands, south of Duck islands, and between them and Bobby rocks. Round Red island at a convenient distance and proceed as before directed.

Or between Duck and Hiscock islands by rounding Little Duck island at 200 yards distant to avoid Webber rock, then in mid-channel between Nancy and Flat islands, round the rock off the former and steer for the small islet midway between Gulnare and Hare islands.

Or by entering the channel between Hiscock and Copper islands, a mid-channel course between those and between Copper and Green islands will lead to the channel between Tickle and Copper islands.

From this position, round Copper island at a moderate distance from the shore, and pass in mid-channel through the narrows between that island and the mainland. Then steer for the bluff point on the north shore, until Black rock is open north of Frenchman island. This mark kept on will lead between the bluff point and the rocky bank in mid-channel. Pass midway between Sullivan island and the rock off the peninsula south of Sloop harbor, then keep the mainland shore on board closing it to about 50 yards north of Sloop harbor, to avoid the bank off Dog island. When Rogers island is open north of the long narrow islet off Dog island, steer for mid-channel between Corbet island and the mainland, taking care to keep the east point of the entrance to Punchbowl well open of Turner head to avoid the shoals north of that head, and to shut in Green island summit with the eastern of the Deepwater islands, before Dog island is shut in with Corbet island, to clear Solomon rock. A course may then be steered to pass close north to Deepwater islands and Walker rock, whence vessels may proceed to Bateau harbor or to sea, as convenient.

North Black rock, E. N. E. $\frac{1}{2}$ E. $\frac{7}{8}$ of a mile from Green island, is 4 feet above high water and bold-to.

Dangers.—Middle ground, with 15 feet water, lies WNW. $\frac{1}{4}$ W. $\frac{1}{2}$ mile nearly, and Eastern rock, with 3 fathoms, N. a little more than $\frac{1}{2}$ mile from North Black rock.

A bank with $5\frac{1}{2}$ fathoms, lies NNW. $\frac{1}{4}$ W. one-third of a mile; a shoal with $4\frac{1}{2}$ fathoms lies NW. by W. one-half mile nearly, and a bank with 6 fathoms WNW. 800 yards from Walker rock.

Shoal bay island forms the dividing point of Shoal and Black Bear bays, and consists of two long promontories joined at the west end, embracing between them a deep cove. Shoals extend for a considerable distance from both extremes. Two islands, 30 feet high, lie close off the southern point, sheltering a small cove. Rocks extend from these and Shoal bay island 200 yards.

A bank, with 10 feet water at the extremes, lying N. and S. about 200 yards long, lies a quarter of a mile south of these islands.

Goss island, 300 yards long, is a whitish rock with a round hillock at the west end, is 38 feet high, and the east extreme of low rocks extending from the two islands off Shoal bay island. The ground is all foul west of this island, but it may be passed a short distance from the east side.

A shoal, with 3 fathoms water, lies N. by E. 275 yards from the west end of Goss island.

Pigeon Island, 200 yards in diameter, 29 feet high and flat, lies NW. by W., $\frac{1}{2}$ W. $\frac{5}{16}$ of a mile from Goss island and 600 yards from the north promontory of Shoal bay island. Low islets lie south of it and shoal water surrounds it for a distance of 200 yards.

A shoal, with $4\frac{1}{2}$ fathoms water, lies NE. $\frac{1}{2}$ E. 300 yards nearly, and Taylor bank, with 5 fathoms, lies N. $\frac{3}{4}$ E. $\frac{1}{3}$ of a mile from Pigeon island.

Black Bear bay, to the westward of these islands, is about 2 miles in depth and $\frac{3}{4}$ of a mile in width. Good anchorage can be obtained in this bay in a depth of 14 fathoms, with a small waterfall on the north shore bearing N. $\frac{1}{2}$ W. There is deep water to the head of the bay, where there is a small settlement, off which vessels can anchor.

River.—A rapid river falls into the head of Black Bear bay; water can be obtained from the waterfall.

Bed head, dividing Black Bear and Open bays, is flat in outline, falling steeply to the eastward and northward, and with shoal water extending a quarter of a mile from the east point.

Salter islands lie close off this head, the smaller white and bare, just west of the extreme, and the larger 55 feet high, covered with dark herbage over gray rock, lying south of the extreme. A small spit extends from the east point, a low islet lies close off the east side and some low rocks near the south point. This island is nearly joined at the west extreme to the mainland by rocks and shoal water, but fishing craft find good shelter east of them, between the island and Bed head, in $2\frac{1}{2}$ fathoms.

A bank, with $5\frac{1}{2}$ fathoms least water, lies NE. $\frac{1}{2}$ E. a quarter of a mile from the south end of the larger island.

Run island lies $\frac{1}{3}$ of a mile NE. $\frac{1}{2}$ E. of Bed head, the channel between carrying 5 to 7 fathoms and affording anchorage with shelter from westerly winds. It is 55 feet high, covered with grass over reddish rock, has a small rock close to the west end, and is connected to Sandy islands, a quarter of a mile to the eastward, by shoal water.

Sandy islands are a group of one large and several smaller islands, forming between them on the east side Sandy islands harbor, a rocky bight completely exposed to easterly winds. The largest island forms the north and west side of the group and is composed of a number of hillocks (the highest 88 feet, sloping to the harbor) joined together by marshes. A cove, 350 yards deep, lies on the northwest side with a white sand beach at the head, and gives good shelter for fishing boats. A considerable settlement is formed here during summer.

The southern island has dark turf over gray cliff, is 65 feet high, and separated from the largest island by a channel just wide enough for boats to go through at half tide. The other islands lie off the north-

east point of the largest, the passages between them being fit for fishing craft only.

The harbor is entered between the southern island and those to the northward, the entrance having on the north side a rock awash at high water, ESE. $\frac{1}{2}$ E., 100 yards from which is a sunken rock. To enter the harbor, keep the southern island closed on board, and anchor in 5 fathoms, coral, when inside.

Dangers.—A rock, with 6 feet water, lies ESE. $\frac{1}{2}$ E. 250 yards from the south extreme of the islands.

A large fishing bank with numerous shoals extends north and east of Sandy islands. The following are those that break in bad weather, with their bearings and distance from the north point of Sandy islands:

Gushue rock, with 3 fathoms water, E. $\frac{1}{4}$ N. $1\frac{1}{2}$ miles; Northeast rock with $6\frac{1}{2}$ fathoms NE. by E. $\frac{1}{4}$ E. $\frac{1}{2}$ mile; East bank with $6\frac{1}{2}$ fathoms N. three-quarters of a mile; the Rendezvous with 6 fathoms NW. by W. $\frac{3}{4}$ of a mile; a bank with $6\frac{3}{4}$ fathoms NW. by W. a little more than $1\frac{1}{2}$ miles, and a shoal with $5\frac{1}{2}$ fathoms W. $\frac{1}{2}$ N. a mile nearly.

American point, west of the entrance to Sandy bay, lies N. $\frac{1}{2}$ W. 3 miles nearly from the northwest point of Sandy islands and is bold-to.

Sandy bay extends north $1\frac{3}{4}$ miles from this point, and is shoal half a mile from the head, but affords anchorage off a cove on the west shore in 10 fathoms, exposed to southerly winds.

Herring bank, with $4\frac{1}{2}$ fathoms least water, lies E. by N. one-third of a mile from American point.

Roundhill island, 174 feet high, is conspicuous, and the easternmost point of the coast. It is composed of a series of hummocks with deep indentations between, and there is a low islet close to on the east side. It is steep to all round, and lies N. by E. $\frac{1}{4}$ E. $9\frac{1}{10}$ miles from White rock.

Saddle or Double islands, SW. $\frac{1}{2}$ W. $1\frac{3}{4}$ miles from Roundhill island, are two groups, the eastern consisting of three, connected by shoal water; the highest, 148 feet high, makes as a saddle when seen from the southward. The west group is composed of three black islets, the easternmost and highest 48 feet above high water. The channel between the groups is 800 yards wide.

A rock, with 1 foot water, lies NE. by E. $\frac{3}{4}$ E. $\frac{1}{2}$ mile nearly from the north extreme of the east group.

A rock, with 5 feet water on it, lies ESE. $\frac{1}{4}$ E. a little more than $\frac{1}{2}$ mile from the same point.

O'Neale rock, with 12 feet on it, lies ESE. $\frac{1}{4}$ E. $\frac{5}{8}$ of a mile from the south end of Saddle islands, and SW. $\frac{1}{4}$ S. $1\frac{7}{10}$ miles from Roundhill island.

A rock, with 3 feet water, lies 200 yards from the south end of the west group; and SE. by S. $\frac{1}{2}$ of a mile from the same point is a shoal with 3 fathoms.

Mark islands lie SW. by W. $\frac{1}{2}$ W. $2\frac{1}{2}$ mile from Saddle islands. Between the two groups there is a clear, and the most frequented, passage. The highest island is flat, 121 feet above high water, from which Cosgrave rocks, 8 feet above high water, extend $\frac{1}{2}$ of a mile to the southward.

A shoal, with 4 fathoms, and deep water close-to, lies N. $1\frac{1}{10}$ miles from the south end of Mark islands, and W. by N. $1\frac{1}{10}$ miles from the west group of Saddle islands.

Queer island lies W. $\frac{1}{2}$ N. a mile from Mark islands. It is surmounted by a remarkable round hummock 132 feet above high water. There is deep water close to the south side, but between it and the mainland there is a passage for boats only.

Toole rock, with 6 feet, lies SE. $\frac{3}{4}$ E. E., one-quarter of a mile from the east point of Queer island. Fish island summit, in line with the east extreme of Bombproof island, N. by E. $\frac{1}{2}$ E., leads to the eastward.

Bateau harbor lies inside Queer island under the highest hill in the vicinity, 289 feet above high water, sloping gently to the sea. In it is excellent anchorage for small vessels in 4 fathoms water, and wharves are built in the head, alongside which large schooners can load. The only safe passage is east of Queer island, keeping Fish island summit shut in with Bombproof island to avoid Toole rock; and when the black rock off Green island is in line with the north extreme of the Mark group E. $\frac{1}{2}$ S. the harbor may be steered for.

Bombproof island is conical, black and white striped, 69 feet above high water, and shows conspicuously from seaward.

A large group of islands, with rocks and shoals between, lies north of this island, but they should not be approached without a chart or a pilot.

Fish island, 41 feet high, is the eastern and outer of the group, and lies N. by W. $\frac{1}{2}$ W. $2\frac{9}{10}$ miles from Mark islands; it is green and round.

Carrol island, NW. $\frac{1}{2}$ N. 800 yards from fish island, is a conspicuous dark round island 157 feet above high water.

Black tickle, a narrow sheltered passage, much frequented by fishermen, lies north of Carrol island. It may be entered by rounding the south end of Carrol island, and then keeping the west shore of that island and the next north on board. Vessels drawing 12 feet can load here.

Domino point slopes from a conspicuous rugged dark hill 285 feet above high water, and is terminated by a rocky islet. It lies NW. $\frac{3}{4}$ N. $3\frac{1}{2}$ miles from the west group of Saddle islands.

Domino run.—This name is given to the passage west of Spotted and the adjacent islands, through which a depth of $4\frac{1}{2}$ fathoms at low water may be carried. The entrance is between Southeast point of Spotted island and Domino point. The latter is situated WNW. $\frac{1}{2}$ W. 5 miles from Roundhill island, and the intervening space is free from danger.

Tides.—It is high water, full and change, at Domino run at 6h. 40m. Springs rise 7 feet and neaps 4 feet.

Mistaken point, $1\frac{3}{4}$ miles from Domino point, is the north extreme of the intermediate dark cliffy coast, which is intersected by a deep gap and in which is an open cove 800 wide, bold to the shore. From this point the shore recedes suddenly to south.

Domino harbor, immediately west of Mistaken point, is 800 yards deep and 150 yards wide. The west side of the harbor is steep-to, and fishing vessels moor alongside in 13 feet water. An isolated rock, with 7 feet water, lies close off the east shore half way up the harbor. There are some houses surrounding it, the most conspicuous on the west side of the entrance. A shoal, with 9 feet least water, lies 200 yards off these houses. Penny Hook cove is a shallow bight northwest of Domino harbor; northwest of it are several rugged points foul for 200 yards from the shore.

Wild bay.—**Gunning point**, the most northern of these points, forms the east side of Wild bay, half a mile deep, foul and shoal, breaking across in easterly gales. Shoal water, called the Flats, extends northwest three-quarters of a mile from Gunning point, with 10 feet on the outer edge, leaving a channel 300 yards wide, with $3\frac{3}{4}$ fathoms water in it between the Flats and the foul ground south of Entry island.

Red point, the northwest point of Wild bay, and the south turning point into Rocky bay, is a red cliff 50 feet above high water.

An islet, 5 feet above high water, is situated NW. by W. $\frac{1}{4}$ W. a mile from Red point. It is surrounded by shoal water, the east patch with $3\frac{1}{2}$ fathoms water being NE. by E. $\frac{1}{4}$ E. $\frac{1}{2}$ mile nearly from the islet, and exactly half way between it and the north point of Grog island.

Green islands and **Black rocks** lie in the south entrance to Domino run. The former consists of a green cone 64 feet above high water and a group of dark rocks, the highest 15 feet above high water. Black rocks are two low rocks 200 yards apart, $\frac{1}{2}$ mile from Green islands, the highest 4 feet above high water.

There is no passage between Green islands and Black rocks, but the channels east of Black rocks and west of Green islands are clear.

Southeast point of Spotted island slopes from a conical hill 205 feet high, the spur of a higher range inshore.

Spotted island harbor, between it and South Black head, is an open bay half a mile deep, where anchorage may be had with off-shore winds in 7 fathoms. It is exposed for vessels, but there is a good boat harbor close under the conspicuous white houses at the head.

South Black head narrows Domino run to less than $\frac{1}{2}$ mile between it and Mistaken point. It is the extreme of a round hill 165 feet above high water, and is bold-to.

The coast of Spotted island north of South Black head has a shingle beach fronting a green marsh, foul for $\frac{1}{4}$ of a mile from the shore. Green island ESE. $\frac{1}{4}$ E. open west of South Black head leads just to the westward of the shoal water.

North Black island, the northwest point of Spotted island, marks the north limit of the shingle beach and shoal water. It terminates at the sea-coast in a dark cliff.

The coast east of it is of dark cliff, with numerous valleys, and may be approached to within 200 yards.

Entry island, dark, with a flat summit 205 feet above high water, shows conspicuously from all directions. Some low rocks lie off the northeast point, steep-to on the east side, and shoal water extends $\frac{1}{4}$ of a mile from the southwest point. The north side is clear at 200 yards distant.

Duck island, with three flat summits, 120 feet above high water, is separated from the north end of Spotted island by a clear channel $\frac{1}{10}$ of a mile wide. A hillock 63 feet high, faced by cliffs, marks the south extreme. The east and north shores are of dark cliffs and steep-to; the west side consists of a series of shingle beaches with shoal water 200 yards off them.

Trusty rock, with 16 feet, is the least water on a large bank extending 375 yards from the west side of Duck island. Mustering point, the extreme of the land north of Domino harbor, kept shut in with the rocks off Entry island SE. by E. $\frac{3}{4}$ E., leads south of this rock.

Grappling island, black and bare, 18 feet above high water, lies 300 yards northeast of Duck island. Shoal ground extends from the south point, ending in a rock that covers 5 feet at high water. There is no other danger between Entry, Duck, and Spotted islands.

Grog island, a sharp green cone, 100 feet above high water, is situated northwest of Entry island; a rock that covers 2 feet, lies off the east extreme, and shoal water extends 200 yards from the south and west sides. The north point is clear beyond a distance of 200 yards.

Fawn rock, with 7 feet water, lies NW. $\frac{3}{4}$ N. 800 yards from Grog island.

A shoal, with $3\frac{1}{2}$ fathoms water, is situated 200 yards south from this rock.

The west end of Entry island, seen open west of Grog island, leads west of these shoals. The west end of Entry island, open east of Grog island, leads east of the shoal.

Back cove point, the northeast extreme of Spotted island, in line with the north extreme of Duck island ENE. $\frac{3}{4}$ E. leads 200 yards northwest of Fawn rock and 250 yards southeast of Centipede rock.

Little Duck island, northwest of Duck island, is 94 feet above high water. There is a passage between them.

Centipede rock, with 2 feet water on it, lies SW. by W. $\frac{1}{4}$ W. 600 yards from the south end of Little Duck island. Shoals extend from it to the banks between Pigeon and White islands.

White island consists of two portions, the southern 196 feet high, dark and steep; the northern 172 feet, a whitish cone joined to the southern by a narrow neck of land faced on the west side by a shingle beach.

A cove, 600 yards deep, runs in between these portions on the north side, and there is a settlement at the head. Shoal water southwest from the island and banks almost fill the channel between White and Pigeon islands. A shoal, divided from the southeast point, extends 250 yards and has 9 feet least water. There is no passage between White, Little Duck, and Pigeon islands.

A shoal, with $5\frac{1}{4}$ fathoms water, northwest 800 yards from White island, is the only dangerous one of several banks on that bearing; and it is said to break in bad weather.

Pigeon island is the name given to two islets separated by a narrow channel. The southern, 63 feet high, covered with grass; the northern flat, 53 feet above high water, and faced by cliffs. A group of islets, 6 feet above high water, lies off the east side of the channel. The whole should not be approached nearer than 200 yards.

A ledge of rocks extends 600 yards from the islet 21 feet above high water, which is situated off Salmon point south of Indian tickle, and a bank with $7\frac{1}{2}$ fathoms lies 400 yards beyond.

The west extreme of Deer island, touching the east extreme of Lynch island N. by E., leads east of the ledge; and Entry island, SE. by E. $\frac{3}{4}$ E. just seen north of Grog island, leads north of these shoals.

Directions.—Entering Domino run by the channels east of Black rocks or west of Green islands, mid-channel between South Black head and Mistaken point will be reached, when the east end of Pigeon island

is seen in line with the west side of Duck island. These marks kept in line will lead in the deepest water between the island of Ponds and Spotted island.

If wishing to proceed to sea, the passage between Duck and Spotted islands is clear, except the rock close to Grappling island.

To proceed west of Grog island, the channel between it and Entry island should be taken, keeping more than 400 yards from Grog island; and when the fall of the hills over Domino harbor is in line with the west extreme of Entry island SE. by E. $\frac{3}{4}$ E., this mark should be kept astern until Back cove point (Spotted island), bearing ENE. $\frac{3}{4}$ E., opens north of Duck island, when a course may be steered for Indian tickle, taking care to clear the ledge of rocks off Salmon point, by keeping Entry island SE. by E. $\frac{3}{4}$ E. in sight east of Grog island.

The course usually followed by fishing vessels is to round Grog island at about 200 yards distant, and when Entry island opens west of Grog island to steer for Indian tickle; but this course leads close to the shoal off Fawn rock.

To pass between Duck and Little Duck islands, Duck islands should be kept close on board and Back cove point brought in line with the north extreme as soon as possible. If bound to Indian tickle, keep this mark on astern until Entry island opens west of Grog island, when proceed as before. If bound to the southward, when Mustering point is shut in with the rocks off Entry island alter course for Grog island, keeping Entry island open east of Grog island to clear Fawn rock. After passing Duck island, the west side of that island should be brought in line with the east end of Pigeon island, and this mark, kept on astern, will lead in the deepest water west of Spotted island.

There is a channel south of Entry island, but it is rarely used. To pass through it, Mistaken point must be kept ESE. $\frac{1}{4}$ E. open east of Man-of-war point, to clear the flats, until the north extreme of Spotted island is in line with the south end of the rocks off Entry island. This mark, kept on astern, will lead in $3\frac{3}{4}$ fathoms between the Flats and the shoals off Entry island. When Pigeon island is just seen west of Grog island NW. $\frac{1}{4}$ N., a course should be steered to open it a little, and when the fall of the hills over Domino harbor is in line with the west extreme of Entry island proceed as before directed.

Spotted island, so called from the alternation of black and white cliffs on the east coast, is 4 miles long and 2 miles broad, and forms the north side of Domino run; the summit is 310 feet above high water.

Castle Dermot is a clifly islet nearly joined to the east coast, and several rocks fringe the shore, but the whole may be approached to a quarter of a mile.

Farmer cove, on the north coast of Spotted island, is an indentation nearly $1\frac{1}{4}$ miles deep, with an island in the entrance. It is exposed to the northward and rarely used as an anchorage.

Griffin harbor, three-quarters of a mile northwest of Farmer cove, is 800 yards deep, and has excellent shelter in 4 fathoms at the head from all winds except northeast. There is a settlement on the shores.

Farmer ledge, with 3 fathoms, lies NW. half a mile from the northeast point of Spotted island.

Wedge or Shag island lies NW. $1\frac{1}{2}$ miles from the northeast point of Spotted island. It is wedge-shaped, with dark cliffs, and a green summit 89 feet high at the north extreme.

A shoal, with 4 fathoms water on it, lies 300 yards NE. of Wedge island, with deep water at 400 yards distance; and a shoal, with 8 fathoms water, lies 200 yards off the southeast extreme.

Dooley ledge, with 6 fathoms water, lies N. by E. $\frac{3}{4}$ E. $\frac{7}{10}$ of a mile from the rocks at the northeast extreme of Spotted island. It is said to break in heavy weather.

Ferret islands lie nearly 2 miles from the northeast side of Indian island, and NW. by W. $\frac{1}{2}$ W. 6 miles from Wedge island. They consist of three high dark islands 180 feet high, with shoal water connecting them, and three small islets to the eastward of them, the middle conical and green, 70 feet above high water, the others low and black. They may be approached as close as 400 yards all round except on the southwest side, off which shoal water extends that distance.

A small rock, that covers 3 feet at high water, lies S. by W. $\frac{3}{4}$ W. $\frac{1}{2}$ of a mile from the northwest point and 400 yards off-shore.

Deer island, 146 feet high, is composed of grass over red rocks with rugged points, but may be approached as close as 400 yards.

Lynch island, 136 feet high, west of Deer island, is conical and dark, with steep sides. From the west end a bank with shoals that break extends a quarter of a mile.

A rock, awash at low water, lies in mid-channel between Deer and Lynch islands.

Indian island falls steeply from a double summit 360 feet above high water to the west side and with one terrace to the east side, and is conspicuous from all directions. Indian head, the north point, falls in a steep bluff from a summit 260 feet high, and is bold-to.

Crab rock, with 9 feet water, lies off American cove on the northeast side of Indian island, 575 yards from the shore.

Indian tickle is formed by Indian island on the northeast and Musgrave land on the southwest. The anchorage, in a bay on the west side of Indian island, is in 4 fathoms, sand, with the white house touching the green slope of Indian head, and the breakers off Foul point in line

with White point. It is safe for shipping in ordinary summer weather and convenient for fishing vessels, but the holding ground is bad, and a heavy swell rolls in after easterly winds. In the summer season of 1867 3,000 vessels passed through.

In the harbor, rocky ground extends some distance from Terra Nova point, leaving only a narrow channel with 3 fathoms water between it and the bank off Rover island on the Musgrave shore, and caution should be used in passing through it. Breakers extend about 400 yards from the west point of Indian island.

Warren cove, at the north end of Indian island, is well sheltered for fishing boats; and two or three small islands in the tickle afford excellent places for fishing stages and curing fish, being protected from all winds and sea.

White rock, with 7 feet water, lies SE. by E. $\frac{1}{2}$ E. a quarter of a mile from White point, and 330 yards from the shore. White point has a ledge, with 12 feet least water, extending 250 yards from it.

Supplies.—Water is abundant and convenient for boats; the wood on the main land is scanty.

Tides.—It is high water, full and change, at Indian tickle, at 6h. 37m.; springs rise 6 feet, and neaps about 4 feet.

The Coast from White point, at the north entrance to Indian tickle, trends WNW. $\frac{1}{2}$ W. 2 miles to Red island. Between them is Sandy cove, $\frac{2}{3}$ of a mile deep, shoal and rocky.

A rock, with 5 feet on it, lies SE. by E. $\frac{1}{2}$ E. $\frac{1}{10}$ of a mile from the east extreme of Red island.

Red island, so named from the color of the cliffs, is separated from the mainland by a channel nearly 100 yards wide, passable by boats except within an hour of low water.

Red island bank, with 9 fathoms water, lies N. $\frac{3}{4}$ W. $\frac{1}{10}$ of a mile, and the Knob, with 8 fathoms, lies NW. $\frac{1}{2}$ N. a mile, from the north point of Red island.

Cape Greep is a dark conical mound, 177 feet above high water, W. $\frac{1}{2}$ N. $3\frac{1}{2}$ miles from Red island. Off it are numerous islands and rocks that cover, the highest of which, Green island, lies E. $\frac{1}{2}$ N. $\frac{2}{3}$ of a mile from the cape, and is almost connected by rocks to the mainland.

The bay between Red island and cape Greep is foul and shoal. In the middle are some black rocks.

A shoal, with 3 fathoms water, lies W. $\frac{1}{2}$ N. $1\frac{1}{2}$ miles from Red island.

Sand hill cove, W. $\frac{1}{2}$ S. $2\frac{1}{2}$ miles from cape Greep, affords good summer anchorage for fishing vessels, and is much frequented; but shoals surround the shores, and prevent large vessels making use of it.

Black rocks are three in number, two lying together, the highest 37 feet, and the third about 20 feet above high water, S. by E. $\frac{3}{4}$ E. $\frac{1}{10}$ of a mile from them, and N. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles from White point at the entrance to Indian tickle. The northernmost are steep-to all round.

A shoal, with 8 fathoms water, lies E. $\frac{3}{4}$ N. $\frac{1}{4}$ of a mile from South Black rock.

Old King, a shoal with 7 feet water, lies W. $\frac{1}{4}$ S. $\frac{1}{4}$ of a mile from the same rock. There are 13 fathoms at 200 yards SW.

Nugent bank, with 8 fathoms water, and 12 to 16 fathoms close-to, lies NW. $\frac{1}{4}$ W. a mile from North Black rock.

Round island bank, with 11 fathoms, lies NE. by E. $\frac{1}{4}$ E. $1\frac{1}{2}$ miles from the same rock.

South Wolf island, the summit of which is 311 feet above high water, lies NE. $\frac{1}{4}$ N. 6 miles from the north entrance to Indian tickle, and NW. $\frac{1}{4}$ N. $16\frac{1}{2}$ miles from Roundhill island. The name comprises a group of islands $2\frac{1}{2}$ miles in total length north and south. The main island, in the center, has a high flat range with a conical boulder at the summit, and is deeply indented on the east side. At the south end is a cove, in which there is very good shelter for fishing vessels. The best entrance is south of an islet 27 feet above high water, lying between the main and south islands, and after passing it keep the east side of the cove on board to the head. Rocks, with 9 feet water on them, lie on the west side of the cove, but there is a clear passage 200 yards wide to the head. South of the main island, separated by a channel 300 yards wide, are three others, the middle and highest rises to a sharp peak 244 feet above high water.

South Wolf rock lies 400 yards SE. of this island; close to it is a rock that breaks.

The two northern islets are separated from the main island by a channel 150 yards wide, through which a depth of $3\frac{1}{2}$ fathoms may be carried by keeping the north shore on board. The two islets are joined, except at high-water springs. A rock, 1 foot above high water, lies N. $\frac{3}{4}$ E. 150 yards from the tickle between these islets, close to which is a rock awash at low water. A rock, with 7 feet water on it, and 14 fathoms close to the north, lies N. by W. $\frac{1}{4}$ W. $\frac{1}{4}$ of a mile from that rock.

North Wolf rock, 38 feet high, N. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles from South Wolf island, is bare, dark, and steep-to all around.

Little Wolf island, 157 feet high, WSW. $\frac{1}{4}$ W. $\frac{1}{10}$ of a mile from the north extreme of South Wolf island, is a steep cone. Off the east side is a low peninsula, and an islet 28 feet above high water. There is deep water all round at 200 yards distant.

North Wolf island, 1,700 yards long and half a mile broad, is surmounted by a flat-topped hill 135 feet above high water. The name

comprehends a group of islets, forming a good harbor for boats on the east side. The east islet is dome-shaped, and the harbor may be entered on either side of it. In the middle of the east entrance is a rock with 3 feet water on it, and 9 to 10 fathoms close-to. The best shelter is at the west end in 2 or 3 fathoms, off a deep cleft in the main island. All these islets may be approached as close as 400 yards.

Round Woif island, SW. $\frac{7}{8}$ W. $\frac{1}{10}$ of a mile from North Wolf island, appears as a cone when seen from the eastward, is 245 feet high, cliffy and steep-to.

Offer Red island, W. $\frac{3}{4}$ N. $1\frac{1}{2}$ miles from Round Wolf island, and N. $\frac{5}{8}$ W. $2\frac{1}{4}$ miles from Black rocks, so named from the color of the cliffs on the north side, is flat-topped, 200 feet high, slopes gradually to the south side, but falls steeply to the north. It is much indented by rugged coves on the south and deep ravines on the north side. The middle on the north side has a cliffy islet about 50 feet high, nearly joined to the shore. Off the west extreme is a small rock with shoal water in continuation for a short distance.

Half-Way island, NW. $\frac{3}{4}$ W. nearly $6\frac{1}{2}$ miles from Black rocks, and NW. $\frac{3}{4}$ N. 9 miles from the entrance to Indian tickle, makes as a flat-topped cone 278 feet high, and has projecting spurs on south and east sides, the east, 109 feet above high water, being separated by a deep cleft from the island. The whole may be approached to within 400 yards.

Devil's Look-Out, NW. by W. $\frac{7}{8}$ W. nearly 11 miles from Indian tickle, is a dark bluff island, wedge-shaped, the highest part, 384 feet above high water, being over the northeast extreme.

Rocky patches, with 12 feet water on them, lie 200 yards off the east side. There is deep water close east of them.

Inside this island there has been no examination.

Quaker hat, so called from the shape, lies southwest nearly a mile from Devil's look-out island.

Lookout rocks are two flat islets, NW. $\frac{3}{4}$ N. a mile from South head of Table bay, and should not be approached within a quarter of a mile.

Collingham island, N. $\frac{1}{2}$ E. a little more than a mile from Devil's lookout, is cone-shaped, 333 feet above high water, and slopes gently on all sides except the east, where it terminates in steep bluffs. Off the north side, separated by a channel 800 yards wide, are some low islets, the highest, 45 feet high, at the east extreme, with deep water to the east and north 200 yards distant. The channel between the islets and Collingham island should not be taken.

Bird islands are two in number, the north a narrow ridge of rock NW. $\frac{3}{4}$ W. $3\frac{1}{2}$ miles from Half-way island, a cone 170 feet above high

water; the south 77 feet high and flat-topped. Off the west point of the latter is a low black rock, and in extension of it 300 yards is a rock that breaks.

South Flat island, NW. by W. $\frac{5}{8}$ W. $1\frac{1}{4}$ miles from North Bird island, is in two parts nearly joined together, about 50 feet above high water, and is foul for 200 yards all round.

A shoal, with 7 feet water, lies SW. by W. $\frac{5}{8}$ W. 300 yards from the southwest side of this island, and another of 7 feet, NW. $\frac{3}{8}$ N. 300 yards from the northwest point.

North flat island, about 70 feet high, lies NW. $1\frac{1}{10}$ miles from South Flat island. Off the north side 200 yards distant is a rock just visible at high water, and shoal water between.

Black island, NW. $\frac{1}{10}$ of a mile from North Flat island, is nearly white in color, and makes as a flat ridge with a sharp peak at either end, the east 217 feet and west 190 feet high. The coast line is rugged, and has shoal water 400 yards from the north and west shores.

Black island harbor is a deep narrow cove at the north point of the island, with excellent shelter for fishing craft, and may be entered by keeping the south shore on board. Separated from the north point by a shoal channel about 100 yards wide, is an island with two summits, the north 91 feet high, the south 84 feet. On each side is a deep cove nearly dividing the island, and all the points have foul ground extending 200 yards from their extremes.

Offer Wolf island, 222 feet high, ENE. $\frac{1}{8}$ E. $1\frac{1}{4}$ miles from the north extreme of Black island, is wedge-shaped, the summit on the east side falling in steep cliffs to the sea. The south side terminates in two hummocks, the south dark, 110 feet above high water. An islet, 56 feet high, lies 200 yards off the north extreme. A rock that covers lies in the channel between.

The Wolves are a cluster of rocks and islets separated by a channel 400 yards wide from Wolf island.

Johnny Paul rock, on which there is a depth of 3 fathoms, lies SSE. $\frac{3}{8}$ E. from the southernmost of the Wolves islets, distant $1\frac{1}{4}$ miles.

Offer Wolf island open east or west of the southernmost of the Wolves leads close east or west of this danger.

Half-way rock, 15 feet high, between Offer Wolf and Black islands, has shoal water at 200 yards distant all round.

Dangers.—A rock, awash at low water, lies in mid-channel between Offer Wolf island and Half-way rock.

A shoal, with 4 fathoms water, lies W. $\frac{3}{8}$ S. $\frac{1}{2}$ mile from the south point of the Wolves.

A shoal, with 6 fathoms, lies SW. $\frac{1}{2}$ W. $\frac{3}{4}$ of a mile from the same point, and $\frac{1}{10}$ of a mile from Black island.

Hare island, 224 feet high, is cliffy and steep-to, separated from Gready island by a channel 200 yards wide, through which there is passage for small vessels only.

Rocks that break lie 175 yards off the north point, and a rocky hummock 15 feet above high water is joined to the east point.

Gready island, lying northwest of Black island, $2\frac{1}{2}$ miles long and nearly a mile wide, is conspicuous and dark, with a flat summit 362 feet above high water, surmounted by a large cairn of stones. The sides, alternate in patches of dark and light rock, are rugged and deeply indented, but may safely be approached to within 400 yards. On the north side is a ridge facing Gready anchorage, within which is a large pond that empties into Watering cove, a small bight on the west side, from which water may always be procured.

Little Gready island, 1,600 yards long and 300 yards wide, is separated from Gready island by a channel 200 yards wide, through which a depth of 3 fathoms can be carried by keeping Gready island shore on board, and thus avoiding a rock that covers at high water near the north entrance. On this island is a large fishing establishment and two flag-staffs, the eastern surrounded by a white paling. The west shore is cliffy and steep-to, and has a deep cove in the center, at the head of which is a red house with a large white stripe. The summit, 88 feet above high water, slopes to the north point, off which shoal water extends a short distance.

A shoal, with 3 fathoms water, lies WNW. $\frac{1}{2}$ W. 250 yards from the north point.

A shoal, with 4 fathoms, and deep water close-to, lies SW. $\frac{1}{2}$ S. 400 yards from the south point.

Anchorage may be had in 14 to 10 fathoms, with Stunk island shut in with Little Gready island, near the south entrance, as convenient.

Cross island, dark and flat-topped, 129 feet high, lies 300 yards off the south point of Gready island, with 10 to 12 fathoms in mid-channel between. It is nearly divided by two deep bights. The west side is bold-to, but off the east end is an islet 13 feet above high water. The channel between this and cape North is a mile wide.

Stunk island, W., 800 yards from Little Gready island, is round-topped, 277 feet high, and falls abruptly on all sides. The south point is a dome shaped hummock with a steep face. It is bold-to except off the south extreme.

Mad Moll covers 5 feet, and lies SSE. 400 yards from the south point of Stunk island, to which it is nearly joined by shoal water, but it may be approached as close as 200 yards on the south and west sides.

Clearing marks.—Gready island cairn, in line with the white flag-staff on Little Gready island, NE., leads 350 yards to the southward of Mad Moll; and Gannet islands east extreme N. $\frac{1}{2}$ W., open west of Stunk island, leads 150 yards to the westward.

High-rat bank, with 8 fathoms water, lies NW. one mile nearly from the north point of Stunk island.

Gready reef, on which the least water found was 12 fathoms, lies N. $2\frac{1}{10}$ miles from the east point of Stunk island, and NW. by W. $\frac{3}{4}$ W. $1\frac{1}{10}$ miles from the east point of Gready island. Cross island S., just open east of Stunk island, leads to the eastward.

Gannet islands, a group of islets and rocks, lie NW. $\frac{3}{4}$ N. $7\frac{1}{2}$ miles from the north point of Gready island. The west island, 226 feet above high water, is steep on the east side, and slopes gently to the west with a little foul ground off it. The eastern group consists of several rocky islets, between which vessels should not pass.

A rock, with 3 feet water, lies a third of the distance across the channel from the south island to the west, and a shoal with 12 feet water lies 250 yards east of the south island.

A rock that covers lies close to the north side of the south island and the whole eastern group should not be approached nearer than 400 yards.

West Gannet rock, SW. $\frac{3}{4}$ S. $1\frac{1}{10}$ miles from West Gannet island, is dark in color and 12 feet above high water.

A rock, that breaks in moderate weather, lies WNW. $\frac{5}{8}$ W. 400 yards from that rock.

East Gannet rock, 55 feet high, lies ESE. $\frac{1}{2}$ E. $2\frac{1}{10}$ miles from South Gannet island. A rock, that breaks in moderate sea, lies from it NE. $\frac{3}{4}$ N. 350 yards.

Outer Gannet island, 104 feet high, is flat, with sides smoothed by the action of ice. It lies N. by E. $\frac{3}{4}$ E. $3\frac{1}{2}$ miles from West Gannet island.

A rock that breaks lies 200 yards off the west point.

Boulton rock, a dangerous rock that breaks in moderate weather, with 21 fathoms at 200 yards distance all round, and no indication of approach to it, lies W. by N. $4\frac{1}{10}$ miles from Outer Gannet island.

Entry or South Duck island, W. $\frac{3}{4}$ N. 2 miles from Collingham island, is low, flat, and surrounded by reefs.

Table bay runs in W. 14 miles nearly from Collingham island, is 4 miles wide at the mouth and narrows gradually to the head.

Ledge island, with a reef extending $1\frac{1}{2}$ miles from the west extreme, lies in the middle of the bay $2\frac{1}{4}$ miles from the mouth, leaving a narrow passage on each side.

Anchorage may be had in South road SSW. of the middle of Ledge island in 15 fathoms.

Table harbor, at the head, has good anchorage in 7 to 11 fathoms, and may be reached from either side of Ledge island, but there are only 4 fathoms in the south channel, and a sunken rock lies in mid-channel three-quarters of a mile from the point east of the entrance.

A Shoal extends about 200 yards southward from the north entrance point of this harbor.

All the points in this harbor are foul for a short distance. Between the second point on the north shore (off which there is a small islet) and the opposite point on the south shore the water shoals to a depth of three fathoms, deepening again to seven fathoms for about 200 yards, when it shoals to three fathoms.

Vessels should not pass the Narrows, as beyond them the water shoals suddenly to a depth of three feet.

North harbor, situated northwest of the west extreme of Ledge island, contains good anchorage in 5 to 7 fathoms, mud. The east point of this harbor is formed by two islands joined to each other and the mainland by shoal water.

A shoal, with 3 fathoms water, lies ESE. $\frac{3}{4}$ E. a mile nearly from the south point of the southern island.

Table bay point, the north point of Table bay, bears from Devil's lookout island NW. $\frac{1}{2}$ W., distant $4\frac{1}{4}$ miles. It slopes gradually from a flat-topped range of yellow-colored hills, and terminates in a rock that covers at high water.

Mullins cove, north of Table Bay point, is $1\frac{1}{2}$ miles deep, and much frequented by fishing vessels. There is anchorage at the head in 3 fathoms, with good shelter from northwesterly winds.

The coast between this and cape North slopes gradually from the same range. All the points end in low rocks with foul ground a short distance off them, but the whole may be approached safely to within 400 yards.

Cape North is an isolated hill with a double summit 323 feet above high water, separated from the mainland by a flat marsh between two shallow coves.

A shoal, with $3\frac{1}{4}$ fathoms on it, lies 200 yards off the east bill, and an islet 69 feet above high water, steep-to, is separated by a narrow channel from the cape, and is rarely distinguishable as an island.

Cape North cove is a shallow bight 800 yards deep, west of cape North. An islet with a house on it nearly fills the cove, one-fourth of a mile within the west bill, and a rock, 2 feet above high water, lies S. by E. $\frac{1}{2}$ E. $\frac{1}{4}$ of a mile from the same point. A shoal, with 9 feet water, lies 200 yards SW. from this rock. Small vessels wishing to go into this cove should keep the north shore on board, and anchor in 5 fathoms.

The Sisters.—Two islets 55 feet above high water, and nearly connected by shoal ground, lie NW. by W. $\frac{1}{2}$ W. nearly a mile from cape North.

Sunken rocks fringe these islands for 100 yards, but there is no danger at 400 yards distant.

Pudding bank, with $6\frac{1}{2}$ fathoms water, lies W. $\frac{3}{4}$ S. 600 yards from the west point of the north Sister. From it a shoal of 8 fathoms extends WNW. $\frac{1}{4}$ W. 400 yards, beyond which there is deep water.

The coast.—Between cape North and Curlew harbor the coast is barren and foul, and should not be approached nearer than a quarter of a mile.

Muddy creek, a shallow bay ending in a salt-water pond a mile deep, lies SSW. $\frac{1}{2}$ W. a little more than a mile from cape North.

American creek, SW. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles from the same point, is 400 yards deep, has 12 feet water in it, and a black rock about a foot above high water in the middle of the entrance.

Creek rock, awash at low water, lies SW. by W. $1\frac{1}{2}$ miles from the west point of cape North, and NE. $\frac{3}{4}$ E. $\frac{1}{4}$ of a mile from the east point of American creek. Between them is a rock awash at low water.

A shoal, with 7 fathoms water, lies NNW. $\frac{1}{2}$ W. $\frac{1}{2}$ of a mile from the east point of American creek.

Curlew island, SW. by W. $\frac{1}{2}$ W. $2\frac{3}{4}$ miles nearly from the west extreme of cape North, is 21 feet high, gray in color, and forms the north side of the entrance of Curlew harbor.

A shoal, with $4\frac{1}{2}$ fathoms on it, and $8\frac{1}{2}$ fathoms close to, lies N. $\frac{1}{2}$ E. 350 yards, and a rocky bank, with $4\frac{1}{2}$ fathoms water, lies SW. $\frac{1}{2}$ W. $\frac{1}{2}$ of a mile from the west point of Curlew island.

Curlew harbor runs $2\frac{1}{2}$ miles in a southeasterly direction from Curlew island, with depths decreasing gradually from 16 fathoms to the head. The bottom is mud, good holding ground, and the sides are barren, utterly devoid of wood.

Large vessels may anchor in 12 fathoms, with the east point of Long island touching the west extreme of Curlew island. Smaller vessels may go up into 9 to 6 fathoms water, as far as a steep bluff 175 feet high on the south shore, on either side of which is a long deep valley. At the mouths water may be obtained. Up to this the only danger is a

rock with 7 feet on it, the outer edge of foul ground 200 yards from the shore just within the north point of the harbor proper. The peak of Long island bearing NW. $\frac{3}{4}$ N., and open west of the harbor point, just leads clear in 6 fathoms. Beyond the bluff the water shoals from either side, narrowing the space with more than 3 fathoms water to 300 yards wide.

A shoal, with $6\frac{1}{2}$ fathoms water on it, and 12 fathoms close to the south side, lies S. $\frac{3}{4}$ W. 300 yards from Observation point, the north point of the harbor.

The Goat-shore forms the south side of Curlew harbor, and extends to Toomie point, the north entrance to Southeast cove. It is rugged and foul, and should not be approached nearer than 400 yards.

Lindsay rock, with 13 feet, is the extreme of shoal water, extending 600 yards from Toomie point and the northwest end of the Goat-shore.

The summit of Stunk island, in line with the south extreme of Green island NE. by E. $\frac{1}{4}$ E. just clears to the northward.

Tides.—It is high water, full and change, in Curlew harbor at 6h. 40m. Springs rise $5\frac{3}{4}$ feet and neaps $4\frac{1}{4}$ feet.

Cartwright island is flat in outline and surmounted by a square hummock 199 feet above high water. It is separated by a channel $\frac{1}{2}$ of a mile wide from Toomie point, narrowed to 400 yards by rocks. The east side of the island has steep green slopes to the water's edge, with a skirting of shoal water for about 200 yards. The west point of Tinker island, just shut in with the east point of Long island N. by E. $\frac{1}{4}$ E., leads in mid channel in $4\frac{1}{2}$ fathoms, the deepest water that can be carried through. The northeast point of Cartwright island is a mound 58 feet high, sloping to a rugged point, off which reefs extends 200 yards. The northwest shore is rugged and rocky, with long points and deep coves. Off the north side shoal water extends 400 yards. Off the South end are three islets forming the east side of Bull gut, the outer having $4\frac{1}{2}$ fathoms close-to. From this islet a sand bank, with 12 feet on the east edge, extends E. 400 yards.

There is anchorage off the southeast shore of Cartwright island in 16 to 13 fathoms, at 400 yards distant, with good holding ground, but a large vessel may anchor anywhere inside Toomie point.

Gimblet shoal, with 16 feet water, lies SW. by W. $\frac{3}{4}$ W. $\frac{1}{2}$ mile nearly from the extreme of the rocks off the north point of Corbet island (the north point of Cartwright island).

Mad Moll covers 4 feet at high water, and lies 300 yards off north Cartwright island, and N. by W. $\frac{3}{4}$ W. $\frac{1}{2}$ of a mile from the islet at Bull gut. There are 5 fathoms at 200 yards north of the rock.

Indian head, the west entrance to Bull gut, slopes from a grassy cone 127 feet high, connected at low water with the peninsula west of it, and

with it form the northwest side of Isthmus bay and southeast side of Blackguard bay.

A rock, with 12 feet on it, lies N. by E. $\frac{7}{8}$ E. 100 yards from the north extreme, narrowing the channel through Bull gut to 100 yards, and a shingly spit, with 3 fathoms water on it, extends NE. by E. $\frac{1}{8}$ E. 400 yards from the east point of Indian head.

Southeast cove runs up ESE. $1\frac{1}{8}$ miles from Toomie point, but the water is shoal for three-quarters of a mile from the head. There are $7\frac{1}{2}$ fathoms deepest water between the points, shoaling gradually to the shore, but rapidly to 2 fathoms towards the head. The holding ground is not very good, but the anchorage may be used in summer months.

Isthmus bay runs up with one bend in a southerly direction $3\frac{1}{2}$ miles from the entrance to Southeast cove.

The shores are barren except at the head, where a dark hill 424 feet above high water is faced by swamps and lakes with small timber around them. The water decreases gradually in depth to an islet, 15 feet above high water, southeast of which all is shoal. A bay with shoal water lies west of this islet.

Bay shoal, with 3 fathoms water on it, lies NW. $\frac{1}{4}$ W. $\frac{5}{8}$ of a mile from this islet (which should not be brought to bear to the eastward of South), on a spit extending from it in that direction, another head of which, with $4\frac{1}{2}$ fathoms water, lies on the same bearing a mile distant.

Blackguard bay runs southwest $1\frac{1}{2}$ miles from Indian head. It is foul and shoal, and should not be entered beyond Bull gut. The north point of this bay slopes from a dark dome-shaped hill 184 feet above high water, and has foul ground stretching east $\frac{1}{3}$ of a mile, with 10 fathoms 200 yards beyond.

Pinch-gut island, 13 feet high, is off the point of entrance to Hare bay. There is shoal water between it and the mainland, but on the seaward sides it may be approached as close as 400 yards.

Pinch-gut bank, with 15 feet water, lies ENE. $\frac{1}{8}$ E. $\frac{7}{8}$ of a mile from Pinch-gut island. Duck island ENE. $\frac{5}{8}$ E., a little open north of Round island, leads clear of this and Cobbler shoal.

Green island, forming the north side of the entrance to Curlew harbor, is round and barren, 145 feet above high water, with sloping points, and skirted by foul ground for 200 yards. The channel between it and Curlew island is $\frac{3}{4}$ of a mile wide.

A shoal, with $5\frac{1}{2}$ fathoms water, lies 300 yards from the south end of Green island, and a bank with $6\frac{1}{2}$ fathoms S. $\frac{1}{2}$ of a mile from the east point, and W. $\frac{7}{8}$ S. $\frac{1}{16}$ of a mile from Curlew island.

Round island is dark and rugged, 222 feet high, lying W. $\frac{3}{4}$ of a mile from Green island. Between them is Pigeon island and a cluster of long rocks that are awash at high water, closing the channel to a stranger.

The north shore is composed of dark cliff with deep ravines, and on the south side rocks that cover and shoal water fringe the shore for a little more than 200 yards, leaving a channel only 100 yards wide between them and the foul ground off Cartwright island, through which $3\frac{1}{2}$ fathoms can be carried. There is a fishing settlement on this shore, the principal house having a belfry.

The Cobbler, a shoal with 12 feet water on it, and 15 fathoms at 400 yards northwest, lies W. 600 yards from Round island.

Harbor rock, 2 feet above high water, lies SE. $\frac{1}{4}$ of a mile from the southeast point of Round island, to which it is nearly joined by reefs. Southeast of it rocks extend 150 yards.

Long island, so named from its shape, is $1\frac{1}{4}$ miles long and 400 yards broad at the widest part. The summit is conical, 231 feet above high water. Off the north point, close-to, is a rock 1 foot above high water, and several low rocks lie close to the south shore. Off the southwest point are Duck island, 101 feet, and Black rock, 6 feet above high water, with deep water at 400 yards distant. Between Long and Round islands there is no passage for a stranger.

McFarlane bank, with 7 fathoms water, lies a quarter of a mile from the south side of Long island.

Tinker island, 56 feet high, NNE. $\frac{1}{8}$ E. $1\frac{1}{2}$ miles from the north point of Long island, is flat, with numerous bowlders scattered over the top. There is deep water at 200 yards distant.

Tinker rock, with 3 fathoms water and steep-to, lies SSW. $\frac{1}{3}$ of a mile from Tinker island.

Budget rock, 4 feet above high water, lies NNE. $\frac{1}{4}$ E. $\frac{1}{2}$ of a mile from Tinker island. A shoal with 8 fathoms lies between.

Budget bank, with 3 fathoms water, steep-to, lies N. $\frac{5}{8}$ E. $\frac{1}{3}$ of a mile from Budget rock.

A shoal spit, with $7\frac{1}{2}$ fathoms least water, extends nearly from Budget rock to Budget bank.

Munday bank, with 7 fathoms water, lies NW. by W. $\frac{1}{8}$ W. $2\frac{4}{10}$ miles from the north point of Long island, and W. $2\frac{7}{8}$ miles from the west point of Tinker island.

A bank, with 15 fathoms least water and 23 fathoms 200 yards distant, lies WNW. $\frac{5}{8}$ W. nearly 3 miles from Tinker island.

Directions.—Approaching Curlew harbor from the eastward.—After passing between cape North and the Sisters, Little Gready island should be kept NE. by E. $\frac{1}{2}$ E., open of cape North, to avoid the shoal of $4\frac{1}{2}$ fathoms off Curlew island. When Long island is shut in with Green island Curlew island may be rounded, and when the south extreme of Long island bearing NW. by W. appears west of Green island the anchorage may be steered for.

Proceeding to Isthmus bay.—After passing Curlew head a mid-channel course should be steered between Green island and the Goat shore until the summit of Stunk island is shut in with the south extreme of Green island NE. by E. $\frac{1}{2}$ E. This mark should be kept on until the northwest side of Tinker island just overlaps the north point of Long island N. by E. $\frac{1}{2}$ E. This mark kept on will lead between the shoal water off Toomie point and that off Cartwright island, and when Southeast cove opens, anchorage may be had there, or farther up Isthmus bay, by keeping mid-channel, taking care not to bring the islet near the head of the bay to bear to the eastward of south.

From the westward.—Small vessels only may enter between Round and Cartwright islands by keeping Harbor rock E. $\frac{1}{4}$ S. until within 400 yards, when the vessel should round it, pass at 200 yards south, and steer for Curlew harbor; or, if proceeding to Isthmus bay, bring the northwest side of Tinker island just shut in with the east point of Long and, and proceed as before directed.

Through Bull gut.—This channel should only be taken in emergency. The western islet in the gut off Cartwright island should be brought to bear SE. $\frac{1}{4}$ S., then steered for on that bearing and kept close on board; an easterly course will then clear the sand-spit off this islet, and anchorage may be had in Isthmus bay.

Sandwich bay is entered between Pinch-gut and Horse-chops islands by several channels between the islands lying across the entrance. The bay extends 10 miles W. by S. to two narrow channels, and thence 15 miles southwest, with an average breadth of 6 miles, to several streams at the head.

Hare islands, W. $\frac{1}{4}$ N. $1\frac{1}{2}$ miles from Pinch-gut island, are two high conical mounds south of the entrance to Sandwich bay, and steep to all round except off the southwest point of the western island.

Anchorage may be had inside them in 10 fathoms.

Hare or Man-of-war rock, N. $\frac{1}{2}$ W. half a mile nearly from the northern Hare island, has on one part of it only 7 feet water. This danger is rather extensive. The marks for this shoal patch are Egg island its own length inside Crab island; the extreme southern part of Huntingdon island as seen from the eastward; the northernmost part of Graedy island just open of the north end of Long island; and the west extreme

of Pompey island on with the west end of the West Gannet island; the low east point of the west Hare island overlaps about one-fourth of the east Hare island.

Pompey island, W. $\frac{5}{8}$ S. $5\frac{1}{4}$ miles from the north point of Long island, is 145 feet high, round and barren. Off the northeast side is an islet 20 feet above and a reef awash at high water, between which and the island is shoal, but there is deep water at 200 yards east.

Pompey rock, N. $\frac{3}{8}$ W. nearly 2 miles from Pompey island, breaks at low water. There are 11 to 17 fathoms close to. The summit of cape North, ESE. $\frac{7}{8}$ E., shut in with the east point of Long island, leads 400 yards to the westward; and Independent island, NW. by W. $\frac{7}{8}$ W., seen open east of Seal islet, leads $\frac{1}{4}$ of a mile to the eastward.

Red island, 10 feet above high water, lies W. $\frac{1}{4}$ N. a mile from Pompey island, and E. $\frac{3}{4}$ S. $\frac{1}{10}$ of a mile from the islet at the east extreme of Huntingdon island. It is fringed by shoal water 200 yards distant from the shore.

An islet, 25 feet above high water, lies NW. $\frac{7}{8}$ W., $1\frac{2}{10}$ miles from Red island. Reefs extend 400 yards from the south extreme, and there is shoal water off the west side.

A rock, awash at low water, lies NW. by W. $\frac{7}{8}$ W. $1\frac{1}{10}$ miles from Red island.

Huntingdon island, $1\frac{3}{4}$ miles W. of Pompey island, is $6\frac{3}{4}$ miles long and $2\frac{1}{2}$ miles broad, fronts the middle of the entrance to Sandwich bay, and is continued southward by a chain of islands and shoals, among which there is no passage.

Egg island, a small rock, lies off the mouth of Egg harbor, an anchorage for small vessels on the south of the eastern end of Huntingdon island.

Diver island, next in size to Huntingdon island, is separated from the north shore of Sandwich bay by Sandwich or Main tickle, three-quarters of a mile wide from shore to shore but narrowed to 400 yards by shoals.

Earl island, south of Diver island, is separated from the east shore of Sandwich bay by a narrow channel, the south end of which (Favorite tickle) is about 400 yards wide, but the passage is narrowed to half that breadth by two islets and some rocks.

A shoal extends for some distance from the mainland which forms the eastern side of the eastern passage through Favorite tickle.

Tides.—In Favorite tickle the tidal streams run strongly, with numerous eddies.

Cartwright harbor, at the north end of this channel, is formed by Curlew point on the mainland, a small peninsula, surmounted by a conspicuous hill, with a flag-staff at the summit. Merlin point, the south-west extreme of the peninsula, is foul for a quarter of a mile. The stores and a large settlement, with a wharf, are situated on the south shore of the peninsula.

Directions.—Give Pompey island a berth of about 400 yards and steer for Egg island, avoiding Hare rock. Then keep the south shore half a mile distant, pass in mid-channel between Curlew point and Earl island, round Merlin point at not less than a quarter of a mile, and when the wharf comes well open of that point steer for the anchorage, and anchor in 7 fathoms, mud, when the wharf bears NE. $\frac{1}{2}$ N.

A vessel drawing less than 18 feet water can pass through the eastern channel of Favorite tickle, but must do so near slack water, as the tides are very strong; the channel between the islets and that west of them should not be attempted. On Merlin point there are some houses westward of the pier, the easternmost of which has a tall chimney; this house should be kept open eastward of the western bluff of a remarkable gap in the hills over Cartwright harbor until the islets in the middle of the tickle are shut in by each other, when the house and bluff should be brought in line. When southward of the islets, the eastern shore is steep-to.

The North channel (North of Hundingdon island) should not be taken without a pilot, except in emergency, but a depth of $4\frac{1}{2}$ fathoms can be carried through it.

Directions.—Keep along the north shore of Huntingdon island, rounding Old Man's head, a conspicuous isolated cone at the north-west point, and passing between it and a small islet, Entrance island $\frac{5}{16}$ of a mile northwest of Old Man's head.

A course of S. by W. $\frac{3}{4}$ W. for $1\frac{1}{4}$ miles will lead a quarter of a mile west of Green island, that is small and of moderate height; thence a course SW. by W. $\frac{3}{4}$ W. for $1\frac{1}{4}$ miles will pass half a mile northwest of Leadingmark island. This island, consisting of two low flat parts joined by a beach of shingle, should be rounded at half a mile distant, till the middle of the island is in line with the gap inside Old Man head, when this mark kept on will lead through Sandwich or Main tickle.

Muddy bay.—This bay is situated close southward of Favorite tickle; anchorage may be had in the center in from 17 to 10 fathoms.

East or Dykes river.—A shoal extends off the entrance to this river.

East arm, 8 miles from Favorite tickle on the east shore of Sandwich bay, affords anchorage in 15 to 6 fathoms at 2 miles from the bottom of the arm, which is shoal.

Hinchinbrook bay, at the head of Sandwich bay, is entered through a narrow channel, south of which anchorage may be had in 16 to 8 fathoms. East river, running southeast from this bay, is shoal.

Several islands and rocks are situated off the west side of the bay, that should not be approached within half a mile. Lumpy island is the northernmost of these.

Eagle river runs in west, being entered north of a peninsula just north of Lumpy island. This river is shoal to the mouth, and should be approached with caution, as the bank lying off the entrance appears to be extending.

Vessels are recommended not to proceed beyond the line joining Lumpy island and Swallow bank.

West river lies north of Eagle river, being divided by Separation point. A narrow channel with 3 fathoms water leads into West river.

Swallow bank is a detached shoal about 400 yards in extent, situated $2\frac{1}{2}$ miles from the entrance to Eagle river, with 6 feet water on it, and 3 fathoms all round.

From the center of the shoal Separation point bears W. $\frac{1}{4}$ S.; south entrance point of Eagle river SW., and the east extreme of a small peninsula north of Lumpy island SSE. $\frac{1}{2}$ E.

Mealy mountains, a conspicuous range about 1,500 feet high, run from the north shore of Sandwich bay to the south shore of Hamilton inlet, and show prominently from all directions.

Sandwich bay may also be entered through the channels between Horse-chops, Newfoundland, and Hamilton islands.

Dog islands, NW. by W. $\frac{3}{4}$ W. 4 miles from Pompey island, consist of two wedge-shaped islands, the east 176 feet and the west 100 feet above high water. Between them are two islets and shoal water. They may be rounded at 400 yards distance.

Seal islet, 35 feet above high water, lies NNE. $\frac{1}{4}$ E. $1\frac{1}{2}$ miles from Dog islands. It is wedge-shaped, and has a reef stretching southwest 200 yards.

A rock, with 5 feet water on it, lies N. $\frac{1}{2}$ W. 270 yards from Seal islet. A rock, with 3 feet lies W. $\frac{1}{4}$ N. $\frac{1}{2}$ of a mile, and a shoal with 9 feet water lies NE. $\frac{1}{4}$ N. nearly 600 yards from Seal islet.

Caution.—The passage between Seal islet and Independent island should not be attempted until a further examination has been made.

Seal rock, SE. $\frac{3}{4}$ E. $\frac{1}{10}$ of a mile from Seal islet, breaks in a moderate sea, and has deep water close to on all sides.

Independent island NW. by W. $\frac{1}{4}$ W., open east of Seal islet, leads 600 yards to the eastward; and Green island, NW. $\frac{1}{4}$ N. open west of Seal islet, leads 400 yards to the westward.

Newfoundland island, WNW. $\frac{5}{8}$ W. a little more than a mile from Dog islands, is undulating in outline, with a bold bluff 316 feet high over the east end, separated by a deep cleft from a lower spur on the seaboard. A shoal, with 13 feet water, lies 135 yards from the base of this bluff. The west side has not been examined.

The north shore is bold and straight, with deep water at 200 yards distant. Off the east point are two islets; the south is flat, 32 feet above high water, and separated by a channel 350 yards wide, in the middle of which is a rock with 4 feet water on it. The northern, Farrels island, is joined to Newfoundland island at low water, and has some houses on it. A low islet lies close to the east point, and a rock that covers off the north end of Farrels island.

Reefs with 5 feet water on them extend 200 yards from the east point of the south islet.

Independent island, off the east side of Newfoundland island, is rugged and cliffy on the east coast, but slopes gently to the west shore. Off the southeast point reefs extend 175 yards, and off the southwest point at 100 yards distant is a rock with 5 feet water on it. A low black rock lies close to the east side, and a cove runs in 400 yards on the north shore. It has several peaks, the highest about 250 feet over the east coast.

Between Independent and Newfoundland islands is a grass-covered islet 70 feet above high water. The passage on the west side is shoal, and a rock with 9 feet water lies close to the east side. By keeping Independent island close on board 14 feet may be carried through. This channel is only 100 yards wide.

Independent harbor is formed by Independent and Newfoundland islands, and has good anchorage in $4\frac{1}{2}$ to $8\frac{1}{4}$ fathoms water east of Farrels island. To enter, keep midway between Independent and the flat island southeast of Newfoundland island, and anchor as convenient. Only $4\frac{1}{2}$ fathoms can be carried in.

Pigeon island, a cone 83 feet above high water, lies close to the west end of Newfoundland island.

Pickens island, a grass-covered mound 45 feet high, lies northwest $\frac{1}{3}$ of a mile from Pigeon island, with a deep channel between.

Packs harbor islands.—At 800 yards from the northwest point of Newfoundland island are two narrow islets with conical hills, forming the harbor between them, the south and highest 215 feet above high water. The only approach to this harbor is from the west, the east channel being blocked by rocks. There is good shelter for fishing vessels in 3 or 4 fathoms water.

A rock, with 3 feet water on it, lies in the middle of the west entrance, but may be avoided by keeping the north island close on board.

A rock, with 3 feet water on it, lies a short distance off the west point of the south island.

Tinker island, $\frac{1}{4}$ of a mile north of Packs harbor islands, is conical and clifty, 139 feet high, with shoal water 200 yards off the points. There is deep water in the channel between.

Grappling island, 133 feet high, is wedge-shaped, with the steep fall on the east side. It lies 400 yards from the east extreme of Packs harbor islands. Close to the west extreme is a rock, that covers 3 feet at high water, and a rock that covers one foot lies in mid-channel between this island and the northeast point of Packs harbor islands.

Black rocks, NW. by W. $\frac{5}{8}$ W. a mile from north point of Independent island, are three small rocks, the highest 3 feet above high water.

Double islands, NW. $\frac{3}{8}$ N. $1\frac{1}{2}$ miles from Independent island, are two clifty mounds, the west and higher 158 feet high, separated by a channel 300 yards wide from the eastern. A rock lies close to the west extreme.

Yellow rock, NE. $2\frac{1}{6}$ miles from the north point of Independent island, is 45 feet high, isolated and bare. Off the south extreme is a rock that breaks, and a spit with 9 fathoms lies one-third of a mile from that point.

Long island, NW. nearly $\frac{5}{8}$ of a mile from Double islands, is long and narrow, with a summit 157 feet above high water.

Flemming rock, awash at low water, lies E. by N. $\frac{3}{4}$ of a mile from Long island. There is deep water close to. Independent island S. $\frac{1}{4}$ E., open east of Double islands, leads $\frac{1}{4}$ of a mile to the eastward; and Independent island SE. $\frac{3}{4}$ S., shut in with Double islands, leads the same distance to the westward.

Ragged rocks, in the form of a semicircle, lie between Long and Tinker islands. They are low and dark, and there is no passage between them and Long island; the highest is 28 feet above high water.

Shag island, NW. $\frac{3}{8}$ W. $\frac{1}{2}$ mile from the west point of Long island, is 220 feet high, bluff and steep.

A rock that breaks, lies 200 yards off the northeast extreme, and a low white rock lies NNW. $\frac{1}{8}$ W. 600 yards from the same point, northwest of which 175 yards lies a rock that breaks.

Handy harbor islands, SW. nearly half a mile from Shag island, are a group inclosing an excellent boat harbor, with numerous passages to it, but not available for larger craft. The islands may be approached to a distance of 400 yards.

Haypook island, NW. 5 miles nearly from Independent island, is the most northern of the group, and has a remarkable cone 254 feet

above high water, that shows conspicuously from all directions. A rock that breaks, lies 300 yards from the southwest extreme. A low rock lies off the north side, and shoal water extends 200 yards from the south point.

Farmer ledge, a rocky bank with 3 feet least water on it, and 10 fathoms at 200 yards distant, lies WNW. $\frac{5}{8}$ W. $1\frac{3}{8}$ miles nearly from Haypook island. The summit of Packs harbor islands SSE. $\frac{5}{8}$ E. open west of Handy harbor islands, clears 600 yards to the eastward.

Green island, 130 feet high, NE. $\frac{1}{4}$ E. $\frac{1}{4}$ of a mile from Haypook isl. and, has a ledge with 9 feet water 300 yards off the west extreme. Two rocks lie 375 yards from the north side, and a low black islet N. $\frac{3}{4}$ W. 400 yards from the east extreme.

Green island bank, with 7 fathoms water, lies E. $\frac{1}{4}$ S. $\frac{1}{3}$ of a mile from the same point.

Black rocks are two in number, the highest, 20 feet above high water, lies N. $3\frac{3}{4}$ miles from the north point of Independent island.

A rocky bank, with three heads that nearly dry at low water, lies E. $\frac{1}{4}$ S. 600 yards from Black rocks. There are 27 fathoms at 200 yards northeast.

Bird rocks, N. nearly 5 miles from the north point of Independent island, are two islets, 49 and 43 feet high, respectively, the easternmost of the group. A bank, with 10 fathoms water, extends a quarter of a mile from the west extreme. There is deep water at 200 yards distant in other directions.

Horse-chops island, so named from the numerous cliff-faced hills on it, lies half a mile west of Packs harbor islands. The summit is 398 feet high, and a remarkable high bluff east of it is 389 feet above high water. The north shore only has been examined. The shore is cliffy and steep-to, with numerous summits. Black Duck cove, a shallow bay with an islet in the entrance, is in the middle of the north coast of Horse-chops island.

Munden island, low and flat, is nearly joined at low water to the north point of Horse-chops islands.

Partridge harbor islands lie northwest of Munden island. The higher, 318 feet high, has a flat top faced by cliffs, and the lower is conical when seen from the eastward. Between them is Partridge harbor, where fishing vessels anchor in 4 fathoms, with shelter from all but easterly winds. A rock, with 6 feet water, lies 200 yards off the east point of the north island. West of these are three islets, between which all is shoal.

Pigeon island, northwest a mile nearly from Partridge harbor islands, is long and narrow. It has numerous hillocks, the highest near the center conical, 146 feet above high water.

A rock that covers, lies 200 yards from the west extreme.

Cape Porcupine, W. by N. 5 miles nearly from Haypook island, is a promontory half a mile wide, jutting out $2\frac{1}{2}$ miles from the mainland, surmounted by a double-peaked summit 343 feet above high water.

Gull island, 63 feet high, is joined to the east extreme of cape Porcupine at low water. The shores are shoal, with sandy beaches and rocky points alternating. From the west extreme a sand beach extends south 5 miles to some low islets, with bowlders that cover off them.

Black rock is isolated 22 feet above high water, NE. by N. 6 miles nearly from cape Porcupine, and NW. by W. $\frac{1}{2}$ W. 6 miles from Haypook island.

Mid-channel rock, with 5 feet on it and 15 fathoms close-to, lies NE. $\frac{7}{8}$ E. $6\frac{1}{2}$ miles nearly from Gull island off cape Porcupine, N. $\frac{5}{8}$ E. $4\frac{1}{2}$ miles from Haypook island, and NW. $\frac{1}{2}$ W. $4\frac{3}{4}$ miles from Bird rocks.

Horse-chops S. $\frac{3}{4}$ W., open west of Haypook island, leads 300 yards to the westward, and Grappling island S. $\frac{3}{4}$ E., open east of Green island, leads 350 yards to the eastward.

The coast runs NW. by N. 14 miles from cape Porcupine to Fish cove point, falling back 3 miles from the line of those points, with rocky projections under the slopes of the hill over cape Porcupine. Sandy beaches then follow, the separation being made by a considerable stream that drains the almost innumerable ponds between the beaches and the high ranges lying 2 to 3 miles inland. These hills appear in huge blocks, falling steeply from heights of 500 to 1,000 feet, to deep valleys that intersect them. The shores shoal gradually, may be approached to half a mile, and anchorage obtained as convenient along the whole shore with winds off the land.

South Stag island, N. $4\frac{1}{2}$ miles from cape Porcupine, is 90 feet high, flat, and covered with grass, formed of two hummocks with a slack between, and has reefs extending one-third of a mile from the southeast east side, but may be approached to half a mile.

North Stag islands consist of two principal on the outside and several smaller in the channel between them, through which only 6 feet can be carried at low water. The southern island, 125 feet high, is a dark cone, the northern, 120 feet high, is flat, with a deep ravine on the north side. The south side of the northern island is foul, but the north sides of the whole may be approached to a distance of 200 yards.

Anchorage may be obtained north of the channel between the islands in 14 to 7 fathoms, sand, as convenient.

Tumble-down-Dick island, 355 feet high, is a conspicuous, dark, narrow island surmounted by a round hillock, and falling steeply all round. Small rocks fringe the shore, and a reef lies 200 yards off the north side under the peak, but the whole are bold-to.

Little Tumble-down-Dick island is 70 feet high, separated from Tumble-down-Dick island by a clear channel 600 yards wide, and is steep-to all round.

Fish cove point or **West bay head** is the north extreme of the sandy shore from cape Porcupine, is faced by dark cliffs, and rises to a green-covered mound 133 feet above high water.

West bay runs in southwesterly 2 miles from this head, but dries for a mile from the head, and is shallow for $\frac{1}{4}$ of a mile from the dry part. Pottle cove head forms the north side of West bay; immediately within it are two coves.

Pottle cove, 400 yards deep, has anchorage off the mouth in $5\frac{1}{2}$ fathoms. A reef extends 200 yards from the point in the middle of the cove, and the west side, a rugged point, is foul a short distance off, but with these exceptions fishing vessels may take up a berth as convenient, 2 fathoms being found close to the shore.

Fish cove, west of Pottle cove, affords shelter to small vessels in $2\frac{1}{2}$ fathoms. From the middle of this cove the line of shallow water stretches to the opposite side of West bay.

The land round this bay consists of a series of moss-covered mounds from 63 to 84 feet above high water.

Old Man island, 89 feet high, shelters Pottle cove, is flat in outline, and faced to seaward by low black cliffs. It is separated by a channel 300 yards wide from Pottle cove head, narrowed by rocks extending off both sides, but may be taken in safety by passing through at a third of the distance across from Pottle cove head.

A rock that covers 2 feet, with a ledge a short distance west from it, lies 200 yards off the south shore, and a shoal, with $3\frac{1}{2}$ fathoms water, lies WSW. $\frac{1}{8}$ W. 1,200 yards from the south point of this island.

New harbor is on the north side of the narrow neck of land ending in Pottle cove head. It is a shallow harbor, but contains fair shelter for fishing craft in $2\frac{1}{2}$ to 3 fathoms behind an island 30 feet high, that forms two channels into the harbor. The western passage is filled by rocks and shoals, and should not be used. The eastern passage is steep-to on the east side, but a rock that covers lies off the island shore, and another rock off the south side of the island at a distance of 50 yards. The anchorage space is 400 yards in diameter.

Tub island is very conspicuous, being in the shape of an inverted tub, 179 feet high, and shows plainly from all directions, being the

turning point of the coast to Hamilton inlet. The island is composed of two mounds, the eastern being the tub, and the western a wedge-shaped mound, with the summit, 77 feet high, over the north end.

An islet 54 feet high, green, and sharp at the summit, is separated by a clear channel 225 yards wide from Tub island, and some islets lie southeast of Tub island 250 yards distant.

A group of islets and rocks nearly joins Tub island to the mainland.

Tub harbor is situated west of Tub island, between these islets and the mainland, and affords good anchorage in 5 to 8½ fathoms, sand. This place is much frequented by fishermen from the United States. The mainland in this neighborhood is deeply indented by rugged, shallow coves, the hills are faced by cliffs at the summit, and rocks lie a short distance off all the points. A conical hill, 381 feet high, marks the end of the coast ranges, about 2 miles inland, and shows plainly from all directions.

From Tub island a ledge, with various depths but shoaler than the water on either side, extends in a general direction E. by S. and nearly to Tumble-down-Dick island.

Cuff harbor, formed by Cuff islands and the mainland, lies about 2½ miles from Tub harbor, and is much frequented by fishermen.

Drakes island, 27 feet high, half a mile, and Bakers ledge, 8 feet high, three-quarters of a mile from Tub island, are on this ledge.

Mad Moll, consisting of two rocks, 100 yards apart, that cover 5 feet at high water, lies 1,200 yards from Bakers ledge. A shoal, with 4 fathoms water, lies 1½ miles from Mad Moll, and a rock, with 15 feet water, nearly 1½ miles from it, and a little more than 4 miles from Tub island.

Duck islands are a cluster of islands, with many rocks above water and sunken dangers, lying north 1½ miles from Tub island.

A rock is said to lie off the east extreme, and another rock about half a mile off the west extreme.

Black rocks are the north of these rocks, and there is a clear passage between them and George island, but the other channels should not be taken without a pilot or local knowledge.

George island is the most remarkable island on the coast, from its height and consequent great distance from which it can be seen, the steepness of the shores, and position at the mouth of Hamilton inlet. It is formed by two high projections, joined at the north ends by a low neck, and forming a bay between them two-thirds of a mile wide at the entrance and a mile deep, narrowing gradually, entered from the southeast, in which anchorage may be had in 6½ to 8½ fathoms, sand, with shelter from all winds except those from SSE. by east to NE. by N. The southern shore of the cove is clear, but from the northern shore shoals

extend nearly a quarter of a mile, and a rock, with 7 feet water on it, lies close east of the outer of two islands that lie close to the northeast point.

Round head, 180 feet high, a small island in the form of a truncated cone, is nearly joined to the southeast point of the entrance to the bay, and fishing-boats find shelter within it.

The north spur of George island is 720 feet and the south spur 750 feet above high water.

Norman reef, with 1 foot water on it, is the summit of a rocky bank extending ESE. nearly 5 miles from the south spur of George island, and is situated E. $\frac{1}{2}$ N. $3\frac{1}{2}$ miles from the south point.

A rock, with one foot water, lies off the entrance of the cove southeast $1\frac{1}{6}$ miles from the northeast extreme. Both these shoals are steep-to.

Southeast rocks consist of a group of three bare rocks, the loftiest 30 feet high, situated NNW. $\frac{3}{4}$ W. $17\frac{1}{2}$ miles from Outer Gannet island, and another bare rock, 32 feet high, N. by W. $\frac{1}{2}$ W. $2\frac{1}{4}$ miles from the southern group. These rocks are steep-to on all sides.

Breakers.—Seaward of Southeast rocks breakers were seen by Mr. Gray, master of the *Labrador*, in September, 1880, when a heavy sea was running; the southern of the Southeast rocks when in line with the breakers bore SSW. $\frac{3}{4}$ W. distant from them about $4\frac{1}{2}$ miles.

Tom Cod rock, a dangerous reef, awash at low water, with a shoal of three fathoms water 300 yards northeast of it, lies SW. $\frac{1}{4}$ W. nearly $3\frac{3}{4}$ miles from the southern of the Southeast rocks.

An islet 7 feet above high water, with a sunken rock off the northwest side, lies NW. $\frac{3}{4}$ W. $4\frac{3}{4}$ miles from the north Southeast rock, and E. $5\frac{1}{2}$ miles from Herring islands.

Leeming rock, with about 1 foot of water on it, lies SSE. $\frac{3}{4}$ E. $4\frac{1}{2}$ miles nearly from the highest Herring island, and is steep-to.

Herring islands are a group of three large and some small islands, about 7 miles ENE. $\frac{1}{4}$ E. from the north point of George island, and may be approached to 200 yards on all sides. The highest is the southern, 184 feet above high water. The channel between it and the eastern should not be taken.

Hamilton inlet (Ivucktoke or Grosse water bay), entered between Tub and Pompey islands, is easily distinguished by the islands at the entrance. It extends in a westerly direction 35 miles to the Narrows, the intervening space containing several islands, and then, after contracting to a third of a mile in breadth, extends 90 miles farther west, expanding to 18 miles in width at lake Melville and narrowing again at the head, into which Hamilton river, a large stream, empties.

The best channel is north of George island, whence, being about 2 miles distant from the island, a course W. $\frac{3}{4}$ S. for 25 miles will lead south of Saddle island, at 15 miles from George island, between West Sister, the western island, and Nat's Discovery point, a small projection from the mainland, passing north of Shag rocks, a group of low islets. Saddle island has a conspicuous double summit, about 400 feet above high water, falling steeply to the shores.

To the northward and westward of Saddle island are Big, Pompey, Little Black, Catos, and Gull islands, and immediately north of it and close inshore is Black island. Ticoralak island is $1\frac{1}{2}$ miles NE. of Ticoralak head, and is close inshore.

Anchorage, with shelter from off-shore winds, may be had in 12 fathoms, off a sandy beach, in Turner bay, just west of Nat's Discovery point. A course WSW. will lead from West Sister to the entrance of Double Mare, an inlet 50 miles deep, the mouth of which must be crossed and the north shore of the inlet kept on board to avoid shoal water stretching off the south side, until the Narrows are entered. On this course the vessel will pass about a mile northwest of Smith island, with low rocks off it situated a mile from the south shore.

Rigoulette.—Mid-channel through the Narrows will lead to Rigoulette, the headquarters of the Hudson Bay Company's trading stations on that part of the coast, which is under the jurisdiction of the Government of Newfoundland. The Narrows, owing to the strong tidal stream, seldom freeze over.

Good anchorage can be obtained off the houses, in 4 to 7 fathoms, mud. A vessel of moderate size should moor, dropping one anchor near the *white* buoy, which is moored N. by E. of Dart rock, and the second NNE. from the first. In this berth she will be out of the stream, which runs strongly over the hard bottom and makes the anchorage insecure.

Dart rock, with 5 feet water, is the only isolated danger, and lies with the south side of the officer's dwelling-house in line with the outer end of the wharf, distant 100 yards from the wharf.

Shoal water extends in the same direction a distance of 200 yards from the wharf to a depth of 3 fathoms.

Northeast stone, situated N. by E. $\frac{3}{4}$ E. 900 yards from the wharf, is awash at high-water springs, and may be considered the eastern extreme of the outlying bowlders, which dry at low water. From Northeast stone the southern edge of the boulder bank extends in nearly a straight line to the northern part of the settlement.

Tides.—It is high water, full and change, at Rigoulette at 7h. 37m. (approximate); springs rise 4 feet, neaps $3\frac{1}{2}$ feet. The streams turn $3\frac{1}{2}$ hours after high and low water; there is no slack water.

Water may be procured at high water from a brook at the head of the bight; wood in abundance.

Vessels should not proceed beyond Rigoulette without a pilot.

Tommy rocks, a group of four, the middle 64 feet high, and Bull-dog rock, the western, 8 feet above high water, are the east extreme of a chain of islands extending seaward from Pompey island, and lie 10 miles NE. of George island. The passages between these rocks are clear in mid-channel, but the sides should not be approached nearer than 200 yards.

Duck islands, $1\frac{1}{2}$ miles west of Tommy rocks, are two grass-covered mounds faced by gray rock, the eastern 100 feet and western 80 feet above high water, and they may be approached to 200 yards.

A shoal with 3 fathoms water on it lies S. $\frac{3}{4}$ W. a little more than a mile from the summit of the west Duck island.

Double islands are $1\frac{1}{2}$ miles west of Duck islands, and consist of two, nearly joined by rocks and shoal water. They are about 60 feet high, and have a reef extending about 400 yards from the southeast extreme.

Tinker island, 55 feet high, is a bare reddish rock, steep-to on all sides, and situated a mile west of Double islands and $3\frac{1}{4}$ miles east of Pompey island.

Pompey island is a conspicuous flat topped mound 335 feet high, with steep sides, three-quarters of a mile from the mainland, off the north-east point of the entrance to Hamilton inlet. The channel between has not been examined, but is reported clear.

A small islet about 30 feet high lies a third of a mile off the south-east end of Pompey island, and a rock with 2 feet water is situated nearly in mid-channel between them.

Puffin island, about 150 feet high, is a green square mound, with islets about 30 feet high off the south and west sides, and may be approached to a quarter of a mile. It is situated S. $1\frac{1}{2}$ miles from Pompey island.

Green island, SE. by E. $\frac{3}{4}$ E. 2 miles nearly from Puffin island, is flat, 70 feet high, and covered with grass over whitish rock. A low rock lies close to the west point, and the east point runs off foul for a short distance.

Little harbor is formed by a group of islands lying three-quarters of a mile from the mainland, and is fit for a few schooners only, that can moor to the rocks. The southern island is 99 feet high, covered with grass over dark basalt, the middle island has a summit resembling the chimney of a house, and the northern island is shaped like a Quaker's hat. The harbor is between the low rocks off the middle island and the southern island.

The shores of the channel between this group and the main are shoal for a short distance, but 14 to 16 fathoms can be carried through the middle.

An islet 42 feet high lies north half a mile from Little harbor islands, surrounded by shoals for 200 yards, but the channel between it and Little harbor islands is otherwise clear of danger.

Pottle bay runs in southwest about 15 miles from this island, but has not been examined.

Alliuk bight runs in north about 4 miles, and is separated at the head by a narrow neck of low land from Little Holton harbor. This bight is shallow.

The point dividing Pottle bay from Alliuk bight slopes from a smooth green hill 475 feet high, on the slope of which is a conspicuous boulder. The shores are fringed by boulders for 400 yards nearly, with shoal water a little distance beyond.

A shoal with 3 fathoms least water is situated NE. $\frac{1}{2}$ N. 800 yards from the islet fronting Pottle bay, and a quarter of a mile from the shore.

Run-by-guess island is separated from Little harbor islands by a channel 400 yards wide, through which 6 feet can be carried at low water. The summit is a conspicuous peak 378 feet high, and over the west end is a flat-topped hill, surmounted by a boulder 332 feet above high water. The north shore is bold-to and has a peninsula 70 feet high, joined by a narrow neck extending a short distance from near the east end. A rock awash, with shoal water, extends 200 yards from the east extreme. A small cove with an Eskimo hut lies just south of the east point and is filled with boulders to the line of the points. Temporary anchorage may be had off the mouth of this cove in 10 fathoms, mud. The south shore is foul and should not be approached within a quarter of a mile.

An island 187 feet high is separated by a shoal channel a quarter of a mile wide from the south side of Run-by-guess island, but is steep-to on the south and east sides.

Run-by-guess, the channel separating Run-by-guess and Ice-tickle islands, is the best passage through this group of islands, being half a mile wide at the narrowest, and almost clear of danger, so that vessels have no difficulty in beating through, and in the event of bad weather may find excellent anchorage between Run-by-guess island and the mainland in any depth from 14 fathoms to the shore.

A small islet 17 feet above high water lies in the middle of that space, with a black rock off the east end, and may be approached to 200 yards.

A shoal with 10 feet water on it and 11 to 6 fathoms round it is situated WNW. $\frac{1}{4}$ W. 600 yards nearly from the islet.

The mainland consists of long, barren, sloping hills, falling to a steep bluff nearly opposite Run-by-guess island and continuing eastward to Man-of-war island, 49 feet high, under the slope of a rounded summit 248 feet above high water. The shore is foul a short distance off, but may be approached generally to 300 yards.

Ice-tickle island appears in three summits, the highest 320 feet high over the south side, and two peaked hills with cliff fronts 307 and 303 feet above high water over the north side, and sloping to the west point in a dark, narrow, basaltic ridge, terminating in a curious small pinnacle. On the north side in a deep bay with shoal water, and from the west point of the bay rocks extend 200 yards. Pinch-gut island, 101 feet high, is nearly joined to the north point, and should not be approached nearer than 200 yards. The south shore is bold-to.

Ice-tickle, on the north side of Rodney Mundy island, is so named on account of the ice remaining there longer than in any other place. The harbor is secure, and a convenient anchorage for vessels proceeding northward. This is also a convenient harbor for fishing and for curing fish; the best fishing-ground is off Black rocks, in 14 fathoms water.

On entering from the southward there is no danger, and the anchorage is in 5 fathoms water, good holding-ground. The north passage has several sunken rocks in it, and others awash. To pass clear of them keep Black Pyramid hill between the points of entrance. Three hundred vessels have been at anchor in Ice-tickle in July at one time, on their way north to fish.

Edward harbor, on the west side of Rodney Mundy island, is small and fit only for small vessels. A sunken rock lies at the entrance. There is good salmon fishing during May and June in Salmon bight.

Indian harbor is small, but affords accommodation for eight or ten vessels under 15 feet draught, moored. The harbor is formed by Indian island on the south, Rodney Mundy island on the north, and protected from the east by Pigeon island. The water in the harbor is smooth, the bottom sand and weed, with banks of fish bones, and at high water 16 feet can be carried into it by the east channel, which is the best. Small vessels can enter by the western channel. It is one of the most convenient harbors for fishermen and for curing fish on the whole coast of Labrador, and fishing stages are erected all along its shores.

A half-tide rock lies on the south side of the harbor, off Norman's house; a rock with 7 feet water lies 100 yards off the south shore, under the flag-staff; a rock lies 140 yards off the south end of Pigeon island, continued a short distance to the southward by shoal water; and a rock with 5 feet water lies in the western channel, 70 yards from the northwest point of Pomeroy island. Temporary anchorage may be had south of the entrance to the harbor, off a cove formed by East point, and that under the flag-staff, in 10 fathoms, but the cove is shoal 400

yards from the channel at the head. This anchorage is exposed to the eastward. Water may be had with a little trouble, but no wood.

Tides.—It is high water, full and change, at Indian harbor at 6h. 20m.; springs rise 7 feet, neaps 4 feet.

Marks island, on the east side of Ice-tickle, is deeply indented by a narrow cove on the north side and two coves on the south side; it is flat and partially wooded, the summits being from 170 to 150 feet above high water.

Green island, 25 feet high, is a small grass-covered rock lying close off the north extreme of Marks island, and has a rock with 7 feet lying 200 yards from the north end.

Smoky tickle, between Marks and Cut-throat islands, is available for vessels of 12 feet draught, but requires a pilot.

Cut-throat island is 3 miles long and $1\frac{1}{2}$ miles wide, appearing with a flat summit 447 feet high, with steep bluff sides, and terminated at east and west ends by peaks surmounted by cairns of stones 200 to 230 feet above high water. Long point, an island 33 feet high, forms the north extreme, and has shoal water distant 200 yards on all sides. Splitting Knife bight, an inlet 800 yards deep, lies on the northeast shore and affords fair shelter for schooners at the head. The northeast and east sides are bold-to. A deep bay runs in at the south end, but affords no shelter. Cut-throat harbor is a narrow creek running in from the west side near the south point, and is separated by a narrow neck only from the bay on the east side. It gives fair shelter to the schooners that frequent it.

Foxy islands are two conical mounds covered with grass over rocks of a reddish hue, lying just south of Cut-throat island, the eastern 90 feet and the western 65 feet above high water. A reef extends a short distance from the east side of the highest island, and a rock with 5 feet water lies SW. by W. 300 yards from the same island.

A black rock 7 feet above high water lies 900 yards southeast of the highest island.

Bacalhao island, 140 feet high, is a curved ridge of basalt, steep-to, and marks the entrance to Indian harbor.

Big island, 240 feet high, is a dark pyramid nearly 2 miles to the northeastward of Bacalhao island.

A shoal with 13 feet water on it lies 1,600 yards from Bacalhao island, and a shoal with 3 fathoms water 900 yards from Big island, in the channel between the two islands. To avoid them keep close to either island.

Lewis rock, E. a little more than a mile from Big island, covers 5 feet and has a shoal with 6 feet water 250 yards southwest from it.

Entry island appears in several hummocks, the highest a sharp peak, over the east side, 207 feet above high water.

Little Entry island, surmounted by a flag-staff, is separated by a narrow shoal channel from the west end; and Jigger island, 66 feet high, with a rock at the south extreme, lies close to the south end of Entry island. Reefs and rocks border the south side of the island, that should not be approached nearer than a quarter of a mile.

Five islands are a group lying ESE. three-quarters of a mile from Entry island, the highest, at the north end, 135 feet high. A small harbor is formed between them, that may be entered from the west by keeping the south shore of the north island quite close to, or from the eastward between the northern and southern islands, the latter making in a knob at the summit over the east side 105 feet high. Shoal water extends from the north end of the west island, and the southern island must be kept on board to the anchorage in 12 fathoms off the fishing stages.

A reef awash at low water lies in the south entrance of the channel between this group and Entry island, southwest half a mile from the entrance to Five islands harbor.

A rock with 3 feet water lies 250 yards off the north side, a shoal with 7 feet water lies 300 yards off the southeast side, and a reef that covers 4 feet 250 yards off the northeast side of this group.

Jigger island, 53 feet high, flat and covered with grass over dark rock, with reefs 300 yards off the west side, is situated ESE. a little more than a mile from the south extreme of Five islands.

The Cubs are two bare islets 42 and 46 feet high, with a small rock between and steep-to, lying E. nearly half a mile from Jigger island.

White Bear islands are a group forming the east extreme of the chain of islands extending from the north side of the mainland at the entrance to Hamilton inlet.

North island is conspicuous from the sharp-peaked summit, 263 feet above high water, and the broken nature of the outline caused by the numerous rugged hills and deep valleys. It is bold-to except at the east extreme, off which lies an islet 27 feet above high water, and a shoal with 13 feet 550 yards from the islet, the outer of two that break in a heavy swell.

Middle island is formed of two flat hills 190 and 180 feet high, is barren and rugged, and steep-to on all sides but the west, off which a rocky spit extends into the western entrance of the harbor.

South islands are two large islands, making in several hummocks and forming White Bear harbor between them, a small anchorage where vessels moor for the fishery, affording indifferent shelter. A shoal

stretches off the north point of this group and leaves between it and the rocky spit off Middle island a narrow channel in, but there are no other dangers from the westward, and a vessel can anchor in 14 fathoms, sand and gravel, off the stages. An islet 28 feet above high water lies in the east entrance to the harbor, and a shoal with 6 feet water SSE. $\frac{1}{2}$ E. 350 yards from the islet and nearly in the fairway of the entrance, but it may be avoided by keeping the south shore, which is bold-to, on board.

Gull island, a conical rock 54 feet high, lies close off the west end of South islands.

Dangers.—Several islets lie east of these, but there are no dangers except these following.

East rock, 42 feet high, is the outer of the group, and is bold to seaward.

A rock with 7 feet water lies NNW. $\frac{1}{4}$ W. $\frac{1}{4}$ of a mile from East rock, and a shoal with 9 feet water SE. $\frac{1}{2}$ S. $1\frac{1}{2}$ miles from the south extreme of South islands.

Bulldog island, in latitude $54^{\circ} 44'$ N. and longitude $56^{\circ} 53'$ W., is an isolated barren rock about 40 feet high and half a mile long, with reefs extending a short distance from both extremes, and situated N. $\frac{1}{4}$ W. $16\frac{1}{2}$ miles from East rock.

Breakers are reported to have been seen in 1877 S. $\frac{1}{4}$ W., distant $2\frac{1}{2}$ miles from Bulldog island.

Double island, consisting of two hummocks 137 and 92 feet high, joined by a low neck, is situated a little more than a mile to the eastward of Man-of-war point. The channel to the northward between these places is almost blocked by rocks and shoals, so that even fishing boats are rarely able to use it. A low reef extends 100 yards from the east end of Double island and a rock lies close to the west end, but with these exceptions the south and east sides are clear.

Thomey island, 110 feet high, situated east 600 yards from Double island, is a round mound with shoal water a short distance off the southwest extreme, and a rock, that dries only at low water, 200 yards northwest of the west extreme.

Fairy island, 139 feet high, is a dark bluff island a mile southeast of Double island, and may be approached to 200 yards on all sides.

Pigeon island, northeast of Fairy island, is formed of two portions, 120 and 75 feet high, joined by a low isthmus. Little Pigeon island, a bare gray cone 58 feet high, lies off the northern part, leaving a passage 600 yards wide between it and Fairy island. Pigeon island is shoal round the shores, and has a low rocky spit extending nearly 400 yards from the southeast extreme.

A rock that covers 4 feet lies between the south points of Pigeon and Fairy islands, 500 yards from the former. Green island open south of Fairy island W. by S. leads south of the rock.

An isolated rock with $3\frac{1}{2}$ fathoms of water lies E. $\frac{1}{4}$ N. $2\frac{1}{4}$ miles nearly from the south extreme of Pigeon island, and N. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles from Entry island. Big island open west of Entry island S. $\frac{1}{2}$ E. clears west, and Double island seen west of Pigeon island NW. clears south of this rock.

Little Brig island, N. half a mile nearly from Pigeon island, is flat and narrow, 115 feet high, and surrounded by rugged rocky points. At the west end is a conspicuous red house with a flag-staff near it, and several houses are situated on the north shore. Rocks extend 300 yards from the west end, and a dangerous rock with 3 feet water lies S. 900 yards from the west point and nearly a quarter mile off shore. The east summit of Double island in line with the east extreme of Thomey island W. clears south of this rock.

Brig harbor rock, with 6 feet water on it, lies SE. by E. $\frac{1}{4}$ E. nearly three-quarters of a mile from the southeast extreme of Little Brig island. White Cockade island open east of Sloop island NNW. leads east, and the west side of the passage inside Sloop island in line with the east extreme of Little Brig island leads east of this shoal.

Brig harbor, situated between Brig harbor and Little Brig islands, is shallow and unsafe, several vessels having been wrecked in different years by lying there. At the best and deepest place there is only 9 feet water, the whole place is encumbered by rocks, and the swell rolls in with any breeze from the eastward.

Brig harbor island, 400 yards northwest of Little Brig island, is $2\frac{3}{4}$ miles long and about a mile wide; it consists of two main portions joined by a narrow part on which stands a conical hill 210 feet high. The northern part is 335 feet high and falls in steep slopes; the southern, 290 feet high, slopes gently to the southward, but in a series of rugged terraces to the eastward.

Sloop island is separated from the east point by a channel 350 yards wide, passable for boats only, having a rock that dries half way across. Sloop island is rugged, intersected by deep cliffy ravines, surmounted by a round lump 173 feet above high water, and continued eastward by low rocky points with shoal water a short distance off them. Sunken rocks lie 200 yards off the northwest shore.

Sloop harbor, $1\frac{1}{4}$ miles deep and 600 yards wide, runs in between Sloop and Brig harbor islands and affords good summer anchorage in from eight to three fathoms, sand. The harbor is free from danger a short distance from the shore and dries about 200 yards from the head, the water shoaling gradually.

Tea cove, an open bight at the north end of Brig harbor island, does not give any shelter. Tea cove head, the north point, is a steep bluff.

Two rocks lie 100 yards off the north shore a third of a mile southwest of Tea cove head.

White Cockade island, 265 feet high, is conical, with a steep bluff at the south extreme under a conspicuous mound, and long slopes to the west and north. It may be approached to 200 yards all round, and is separated from the east side of Brig harbor island by a clear passage nearly three-quarters of a mile wide.

A reef that covers at high water is situated E. $\frac{3}{4}$ S. 1,200 yards from the east extreme of White Cockade island, and is steep to on all sides.

Coffee island is a yellow rock with a conical mound at the east end 35 feet above high water, and should not be approached within 200 yards. It is situated W. $1\frac{1}{2}$ miles nearly from White Cockade island.

A reef that covers 2 feet at high water, and is 400 yards in extent, lies 400 yards northwest of the east end of Coffee island, and a bank with 6 fathoms water N. by W. 1,600 yards from Coffee island.

Teapot island, half a mile from the north point of Brig harbor island, is 85 feet high, round in shape, and may be approached generally to 200 yards.

Taylor rock, with 3 feet water, lies 300 yards off the north end of Teapot island and is steep to seaward.

A reef that covers 1 foot lies W. $\frac{3}{4}$ N. 800 yards from the same point. Chance island open north of Flat island WNW. $\frac{1}{4}$ W. leads north of Taylor rock.

Duck islands, a cluster of rocks, dark and bare, are situated a third of a mile southwest of Teapot island, the highest 51 feet high, and should not be approached nearer than 400 yards, nor should the passage between them and Teapot island be attempted.

Harbor rock, awash at low water, lies SE. $\frac{1}{4}$ E. 1,100 yards from Duck island. Coffee island in sight east of Teapot island, N. by E. $\frac{1}{2}$ E., clears east of the rock.

Fox island, 125 feet high, has a flat summit with a steep fall at the west end, and is barren. The passages between it and the main, Teapot island, and Duck island are encumbered by rocks and should not be attempted.

Emily harbor, on the northwest side of Brig harbor island, is formed by it and Camel island, a dark bare mound 130 feet high. The harbor is entered between Brig harbor island and Deadman island, the latter

a round barren rock 100 feet high, and by keeping the Brig harbor island shore on board the wharf may be reached and vessels moored alongside in four fathoms water. The harbor will only contain three or four vessels. The only dangers in the approach are Harbor rock and the two rocks off the north side of Brig harbor island. There is no passage from the westward.

Dark tickle harbor, southwest of Emily harbor, is formed by Butt, Camel, and Brig harbor islands, and is entered between Thomey, Double, and Brig harbor islands. It affords good shelter for small vessels in six to eight fathoms, mud.

Horse harbor, north of the chain of islands ending in Dark tickle harbor, is shallow and fit for small schooners only, which moor to the shore.

Black rock, 29 feet, is round and barren, with a reef a short distance off the west side, and lies north 1,200 yards from the northeast end of Fox island.

Flat island, 21 feet high, is 600 yards northeast of Black rock and NW. by W. $\frac{1}{2}$ W. $1\frac{1}{2}$ miles from Teapot island. Shoal water extends 200 yards from the south and west extremes.

A shoal with 13 feet water on it and steep to lies NW. by W. $\frac{1}{4}$ W. 400 yards nearly from Flat island.

Green island, 49 feet high WNW. $\frac{3}{4}$ W. $2\frac{1}{2}$ miles nearly from Coffee island, is flat and surrounded by rocks, but may be approached on all sides but the southwest to a quarter of a mile.

Holton harbor, south of Green island, is a mile deep, three-quarters of a mile wide at the entrance, diminishing to 550 yards at 800 yards in, and continuing that width to the head. On the east side is a cliff-faced hillock 134 feet high, and on the west a round hill 253 feet above high water. Rocks that cover two feet lie in mid-channel between Green island and the harbor, and they are nearly joined to that island and the north point of the harbor by a chain of sunken rocks. A shoal with 13 feet water lies 150 yards southeast of the mid-channel rocks. Reefs extend 350 yards northeast of the west point and 300 yards from the east point, leaving a channel only 250 yards wide between the latter and the mid-channel rocks. Two rocks extend in a line off the east shore a quarter of a mile within the east point, the northern, with seven feet water, being 250 yards from the shore.

The entrance of this harbor is very foul and should not be taken without a pilot except in an emergency, when the following directions will be of use: Bring the east fall of the cliffs on White Cockade island in line with the summit of Coffee island E. $\frac{3}{4}$ N., and keep it on to pass between the reefs off the south point and the shoal off the mid-channel rocks, and when the inner points of the harbor open SSW. $\frac{1}{2}$ W. round

in and steer up for the middle of the harbor, anchoring in $6\frac{1}{2}$ to 5 fathoms, sand, as convenient. A rock that covers lies close to the east shore northeast of the first fishing stage in; the water shoals to three fathoms at 800 yards from the head, and a bank with $1\frac{1}{2}$ feet water extends 150 yards from the west shore just beyond the first white house in.

Tides.—It is high water, full and change, in Holton harbor at 6h. 45m.; springs rise $5\frac{3}{4}$ feet.

Holton island, $1\frac{1}{4}$ miles NW. of Green island, is $1\frac{1}{2}$ miles long and three-quarters of a mile broad, and is generally flat in outline, with a conspicuous truncated cone over the northwest end 316 feet above high water. The shore is rocky and should not be approached nearer than a quarter of a mile, nor should the passage between it and Chance island be attempted by a stranger.

Chance island, separated by a channel nearly half a mile wide from the southwest side of Holton island, is a flattened cone 229 feet high. Low rocks extend nearly 400 yards from the northeast end.

A reef awash at high water lies a quarter of a mile off the west side.

A rock that covers six feet at high water is situated nearly midway between Chance island and the north point of Holton harbor.

The coast.—From Holton harbor the coast trends west to Little Holton, a shallow anchorage separated by a narrow neck of land from Al-liuk bight. From this to the point of Byron bay southwest of Tinker island the coast is fringed with rocks and should not be approached within two miles until further examined.

Tinker island, 201 feet high, is a conspicuous, rugged, cliffy island, NW. $\frac{1}{2}$ W. six miles from Holton island. West from this numerous islets and rocks almost reach the shore.

Quaker hat, 125 feet high, so called from the shape, is situated NE. by E. $3\frac{3}{4}$ miles from Tinker island and NW. by W. $\frac{3}{4}$ W. 7 miles from the east point of Holton island.

Quaker reef, 20 feet high, is between three islands, distant $2\frac{1}{4}$ miles from Tinker island. The channels on either side of this reef are clear, but that west of it is the one generally used.

Ship harbor head, about 500 feet high, is a conspicuous cone in Byron bay, sheltering Ship harbor, W. by N. 13 miles from Tinker island. False cape is the extreme of a saddle-shaped hill 900 feet high, that with cape Harrison forms a deep bay. Off False cape is a low islet, steep-to on the seaboard.

Bear island, about 150 feet high, lying 2 miles southeast of cape Harrison, is reddish in color and steep-to on the east side.

Cape Harrison is the bluff extreme of high land, with two summits close together, the highest 1,065 feet. Steep reddish cliffs fringe the promontory and it is conspicuous from all directions, fully meriting the Eskimo name *Uivaluk* or *the cape*.

Webeck harbor.—This harbor has been for some years a great rendezvous and highway for fishermen; it is formed by Webeck (corrupted from *Uivuk*, or cape) island on the northwest, the mainland of cape Harrison on the southeast, and protected on the northeast by Morison island. It is $1\frac{1}{2}$ miles in extent and safe and secure for vessels of any size, but exposed for fishermen, and no stages are erected, though the fishing-grounds are good all round the island and under the cliffs of the mainland in 14 fathoms water.

Webeck island is about 280 feet high, with a few hills on its north side; the center is flat, having a number of lakes. The island is formed chiefly of gneiss, though veins of quartz exist as well as masses of boulder; rocks of trap formation are also met with standing in columns.

The main channel to the harbor is between Webeck and Morison islands. Clinker channel, between Morison island and the land of cape Harrison, is said to have a rock in it, on which H. B. M. brig *Clinker* nearly struck in 1821, but which has not been found since. Western channel is not recommended. The anchorage is in five or six fathoms water, sand and mud, westward of two flat rocks 7 feet above high water, called Harbor rocks; there are no other dangers.

Supplies.—Water can be procured from Webeck island, but inconvenient for boats; wood is scarce, being only stunted gnarled roots from the sheltered valleys, but it is more abundant on the mainland.

Tides.—It is high water in Webeck harbor, full and change, at 6h. 21m.; springs rise 7 feet, neaps about 4 feet.

Between capes Harrison and Strawberry is a deep bay nearly semi-circular in shape, containing the Adlavik islands, and flanked by conical hills ranging from 1,500 to 2,400 feet, that show conspicuously also from the course between Tinker island and cape Harrison.

The track pursued by vessels is close to the mainland points of this bay, and is free from danger.

Jigger island (west of which is Jigger tickle) is a low green island about 200 feet high, wedge-shaped, $3\frac{1}{2}$ miles from Webeck island. West two miles from it is a promontory surmounted by a prominent conical green hill about 500 feet high, that slopes gradually to a point faced by whitish cliffs with a deep fissure in them, forming the east side of a deep bay.

Double islands, about 450 feet high, are joined by a low neck, and are situated W. by S. 10 miles from the north point of Webeck island.

They terminate to the eastward in a low rocky point, and are steep-to on the north side.

An islet about 60 feet high lies east three-quarters of a mile from the north extreme of Double islands, and may be passed at a convenient distance on either side.

An island, long and narrow, with a mound about 100 feet high at the north end, is situated W. $\frac{3}{4}$ S. $3\frac{1}{2}$ miles from the northern end of Double islands.

A deep bay lies south of Double islands, with a dark round hill in the foreground, and containing a wedge-shaped island about 150 feet high, and several islets joined to the mainland at low water. The mainland from this is indented with some deep bays and presents everywhere the same character, high conical hills falling steeply to the water's edge.

Dog islands, two in number, about 300 feet high, are W. 8 miles from Double islands. The eastern consists of two hills joined by a low beach, and the western is flat-topped with steep sides, 1,600 yards from the eastern. A rocky islet 20 feet high lies off the north end.

A dark island with two summits is situated NW. by W. $\frac{3}{4}$ W. 4 miles from Dog islands, E. 1,400 yards from which is a grassy islet 30 feet above high water with a low reef 100 yards from it.

A conical island lies north 4 miles from Dog islands, the west extreme of Adlavi islands, a large group, and a port of call for the local mail-steamer. The channels between these islands have not been examined, and therefore they should be used with great caution.

Manak island (Mannox) is situated NW. $\frac{3}{4}$ N. $4\frac{1}{2}$ miles from the conical island, several islets and rocks lying east of the direct line between them. It is surmounted by a sharp-peaked hill on the southwest side and slopes gradually to the northward in a series of summits, ending in a cluster of low islands and rocks that may be approached to 400 yards.

Pomiadluk point is low and sharp, sloping from a moderate elevation, and lies N. by W. $5\frac{3}{4}$ miles from the islets off Manak island. Between them are several islets that are passed to the eastward, and near the shore, at $1\frac{2}{3}$ miles from Pomiadluk point, is a group of low rocks with a sunken rock off the south extreme. The passage is close to the shore inside these rocks.

Cape Strawberry, or Umiakkoviktanuk, is the extremity of a hill 1,235 feet high, the northern end of a high range running inland and terminating in a conspicuous cone, Altagaiyavik, or Monkey hill, 2,170 feet high. The cape is faced by terrace-like cliffs with deep ravines at the extreme of each.

Between Cape Strawberry and Mikkovik is the entrance of a bay reported to run up 20 miles. At the entrance is a group of low black islets

and sunken rocks almost blocking the channel north of them. South of these rocks, under Cape Strawberry, is Strawberry harbor, formed by a small island.

Cape Mokka, the east side of Aillik bay, falls in a succession of round summits from the inland ranges to a steep bluff on the coast. Two islets lie east of the point, between which and the shore there is no passage, but they may be passed between, or at 200 yards east from them. The north and east points of this cape are foul for 400 yards.

Islands.—Between capes Harrison and Mokka are the following groups of islands :

Ragged islands (Kingnitaksoak), a group of basaltic rocks, are composed of four principal and numerous small islets and rocks. The highest is the second from the north, and is most conspicuous from the remarkable hill 640 feet high that falls in a perpendicular cliff to the sea. The northern island is also high, with two round mounds, and is the largest of the group. Fishing craft anchor in all passages, but the anchorages are not good. The southern islet is situated WNW. $\frac{1}{2}$ W. eight miles from Cape Harrison. Two rocks about 10 feet above high water lie S. by W. $\frac{1}{4}$ W. $\frac{3}{4}$ of a mile from the northern island.

Adlavik islands are a large group, filling the north corner of the bay. Nearly all are high and much indented, and the channels are narrow, with small islets and rocks in them.

Tikaoralik (Wheel), a sharp-peaked islet about 400 feet high, is the eastern of the group, and is situated W. $\frac{3}{4}$ N. 18 $\frac{1}{2}$ miles from Webeck island. A small islet lies close to it, 20 feet high, with a narrow channel between, through which 3 fathoms can be carried.

A rock is reported between this and Ragged islands.

Kikkertavak is the largest of the group. Rogers harbors lie at the northeast extreme, WNW. $\frac{3}{4}$ W. 2 miles from Tikaoralik. The entrance is deep and narrow between low rocks on either hand, and craft anchor in 12 fathoms. The harbor is made by an islet and these rocks, and there is a passage between the islet and Kikkertavak from harbor to harbor.

Rocks.—Off the eastern harbor are two dangerous ledges that cover at high water; to clear them the shore should be kept on board till the first channel opens north of Rogers harbors.

The northern island has a round dark hill with a cairn on the summit, and between it and Kikkertavak is an islet with a triple hill.

Anauit, a flat island about 200 feet high, lies 3 $\frac{1}{2}$ miles off Kikkertavak and WNW. $\frac{3}{4}$ W. 11 miles from Ragged islands. Between it and Adlavik islands are several islets and rocks.

Kidlialuit is the outer of two large and some small islets, the inner of which are called Ironbound islands by the fishermen. It is about 250 feet high, with a steep cliff at the north end, and is almost divided by a fall in the hills. The north extreme lies NW. by W. $\frac{1}{4}$ W. $32\frac{3}{4}$ miles from Cape Harrison.

Uigoklialuit is the northern of another group lying parallel to Kidlialuit, the northern extremes lying W. by N. and E. by S., 7 miles apart. The outer and inner are nearly the same height and shape, but the outer island has a portion almost detached at the extreme.

Aillik bay is fringed by bowlders on the east side, where there is a lagoon dry at low water, but the west shore is steep to till the trading post of the Hudson Bay Company is reached, off which is a bank about a mile in length, with 3 fathoms water on it, that breaks in bad weather. There is good anchorage in Summer cove, the first indentation on the west shore, in 10 fathoms, mud, but northwesterly winds blow with heavy squalls, and anchorage may be had in the cove off the houses, in six fathoms, sand and rock, with the two points on the west side of the harbor touching. A vessel in entering this cove should avoid the rocky bank before mentioned by passing within about 400 yards of the north point of the cove.

Water may be procured in abundance from a lake behind the houses, and the boats lie at the smooth beach of gravel, where a hose may be led into them. Wood may also be obtained.

Cape Aillik, the north point, is a small islet 80 feet high, steep to on the outer face.

Turnavik islands are a group situated $1\frac{1}{2}$ miles northwest of Cape Aillik. The largest and northern is wedge-shaped, the summit about 300 feet high over the east extreme, off which is a low islet. The southern islet is dark and basaltic. A cluster of islets and rocks is situated southeast of the largest island and east of the southernmost, between which there is no passage. The only track to be followed is south of this cluster and close to the east extreme of the southern island. **Nauyaktikiluk** (Gull rock), about 40 feet high, is the eastern of the group, and may be approached on the east side to 400 yards. Reefs that generally break lie between this and the low islet east of the northern Turnavik island.

The harbor is on the southwest side of the northern island and is formed by an islet point, within which about fifty vessels moor side by side.

A rock that breaks in bad weather is situated N. $\frac{3}{4}$ W., $2\frac{3}{4}$ miles from the Turnavik islands.

Kaipokok, a remarkable hill 895 feet high, is situated SW. by W. $\frac{1}{4}$ W. 10 miles from Cape Aillik. A bay about 30 miles deep runs in south

of this mountain, at the head of which is a post of the Hudson Bay Company. Several small harbors are situated at the promontory at the base of this mountain, but they have not been examined, and the approaches to them are through a labyrinth of rocks and islets that should not be navigated without local knowledge.

Ukalluktok are a group of islands WNW. $\frac{3}{4}$ W., $8\frac{1}{2}$ miles from Turnavik islands. Between these two groups sunken rocks lie scattered, but there is a passage between them and just southwest of them. The southern of the Ukalluktok group is curiously striped black and white in nearly horizontal bands, and is an excellent mark for distinguishing the track and Tikkerasuk.

Tikkerasuk (Tickle Arichat of the fishermen) is an island 91 feet high, off a promontory on the mainland, $3\frac{1}{2}$ miles from Ukalluktok. There is only a shallow channel between the island and the main, but it forms an excellent anchorage for fishing vessels; off the southeast side are some low islets, within which anchorage for a night may be had; the north point is steep-to, and off the north side of the passage are some islets that shelter the anchorage.

From Tikkerasuk to Hopedale the islands and rocks are almost innumerable, and so many are alike that it would be impossible to identify them from description. In the directions those bordering on the track will be described.

Canairiktok, a deep bay, the entrance of which is W. $\frac{3}{4}$ S. from Tikkerasuk, is said to extend 25 miles. Kyaksnatalik, an island with a sharp peak, is situated on the north side of this bay, at the northeast extreme of which are long points, each surmounted by a conical hill, on the northwestern and southeastern of which cairns have been built. These cones range from 300 to 400 feet in height. From the northeastern of these to Hopedale is a straight run.

Nanuaktok (White Bear island) is the eastern of the group between Ukalluktok and Hopedale. It is situated NW. $17\frac{3}{4}$ miles from cape Mokkaik, is about 50 feet high, flat, and fringed by low rocks.

Nauyaksigalik (*The Gull*), surmounted by a flag-staff for recognition by the Moravian mission ship, is 210 feet high, faced by cliffs, and is the northeastern of this group. Two low islets lie east of it $3\frac{1}{2}$ miles, with sunken rocks east and west from them. Rocks lie off Gull island 1,000 yards.

Uyarazuksulik (*Two Stones*), so called from two remarkable blocks of stone on the south side, is separated from Gull island by a channel 1,800 yards wide, in which is a rock that breaks. Off the east side of this island rocks extend 1,800 yards.

Two low islets are separated by a channel 1,600 yards wide from the northwest end of Gull island, and a rock lies half way between them and the outer rocks off Gull island.

From Gull island to Hopedale there is almost a straight run, with large groups of islands on either hand.

Kingitok are two remarkable islands on the south side of this passage, both dark and basaltic; the eastern, 370 feet high, shows as a cone from all directions; the western, 330 feet high, shows conical only from east and west. They are excellent marks for recognizing the passage to Hopedale.

Hopedale harbor.—This is a place of much interest in connection with the Moravian mission, the settlement of which is in a small bay on the mainland, protected from the eastward by the islands of Anniowaktook or Big Snow hill, and Anniowaktornusek or Little Snow hill. The bay is about half a mile in extent and the ground rather uneven, being composed of sand, gravel, and here and there rock. In approaching from the southward there are no hidden dangers; but from the northward there is a rock two feet above high water, lying near 200 yards eastward of the Seneraluk, a white rock above water. The harbor freezes over occasionally during the first week of September. Secure anchorage in six or seven fathoms water, good holding ground, will be obtained off the Moravian missionary settlement; it is a convenient temporary anchorage for fishing vessels. About 300 Eskimo reside around the mission-house.

Water is abundant, but inconvenient for boats; wood is scarce, being brought from a distance of eight or ten miles.

Tides.—It is high water, full, and change, at Hopedale at 5h. 38m.; spring rise seven feet and neaps four feet.

Winds.—The prevailing winds on this portion of coast are off the land, from NW. to SW. Strong north and northwest squalls, which last only an hour or two, may be expected during the month of August, and occasionally a thunder-storm, with much rain.

Current.—The current is almost invariably from the northward, unless counteracted by strong south and southeast gales.

The barometer is generally low on this portion of the coast and does not indicate the approach of bad weather. Fine weather has been observed with the barometer showing 29.45 inches, and on rising wind and rain have set in.

Tracks.—Between Hopedale and Windy Tickle or Ikirasluk and thence to cape Harrigan there are two tracks that may be pursued, namely, either to keep quite outside or inside the islands. The islets and rocks are so closely studded together, and so many breakers show with even a moderate sea, that the navigation among them until surveyed must be attended with great danger.

Holton to Aillik—By the inner track.—From Holton island a course NW. by N. $6\frac{1}{2}$ miles will lead between Tinker island and Quaker reef, whence NW. $\frac{3}{4}$ W. $22\frac{1}{2}$ miles will lead to cape Harrison, passing close east of Bear island. Rounding Webeck island, a course W. $\frac{3}{4}$ S. $9\frac{1}{2}$ miles will lead close north of the small islet off Double islands; then SW. by W. $\frac{3}{4}$ W. $7\frac{1}{2}$ miles will lead north of Double islands and south of the next islet. The course must then be changed to W. $\frac{1}{4}$ S. to pass between Dog islands and the mainland. Rounding Dog islands, a course NW. $\frac{3}{4}$ N. will lead from the islet just west of Dog islands to the conical island, passing east of the island with two summits and grassy islet off it. From the conical island a course N. by W. $\frac{1}{4}$ W. 11 miles will bring the vessel to the narrow passage between the mainland and some low rocks, passing east of the islets off Manak island at 7 miles and west of a double islet at 9 miles. The coast may then be kept off a reasonable distance to Pomiadluk point, whence to the islands off cape Mokkaovik the course is NW. $\frac{1}{4}$ N. $8\frac{1}{2}$ miles.

By the outer track.—A course NW. $\frac{3}{4}$ N. $8\frac{1}{2}$ miles from Webeck island will lead north of Ragged islands, when a course NW. by W. $\frac{1}{4}$ W. $22\frac{1}{2}$ miles will lead to the north extreme of Kidlialuit. Pass by the north end of Uigoklialuit, and then steer W. $\frac{3}{4}$ N. $6\frac{1}{2}$ miles for cape Mokkaovik.

By the middle track.—Stand down for Jigger island, and when it bears S. $\frac{1}{4}$ W. steer WNW. $\frac{1}{2}$ W. 15 miles to pass northward of Tikaoralik; rounding the northeast extreme of Kikkertavak (Rogers), keep close to the shore till the first channel west of that island is open, then stand off shore until Pomiadluk point is seen well clear off the northeast side of the Adlavik group, when a course NW. $\frac{1}{2}$ W. $11\frac{1}{2}$ miles will lead between Pomiadluk point and some low islets, whence a course may be steered for cape Mokkaovik. This route should be used with great care, as the soundings are most irregular.

Aillik to Hopedale—By the inner tracks.—From Aillik a course W. $\frac{3}{4}$ N., $3\frac{1}{2}$ miles, will lead south of the eastern islets of the Turnavik group to the southern island, that should be rounded at 200 yards. The best route to follow is WNW. $\frac{3}{4}$ W., 11 miles, to the striped island of Ukalluktok, thus passing south of the numerous rocks and breakers and east of the archipelago of islands in this reach. After passing between the striped island and an islet 5 feet high, 1,800 yards southwest of it, the west end of the Ukalluktok group should be rounded and the point of Tikkerasuk steered for. The usual track from this is to steer W. by N., $5\frac{1}{2}$ miles, to a brown islet 15 feet above high water, then NW., $2\frac{1}{2}$ miles, to an islet about 50 feet high, passing southwest of an island 70 feet high at $1\frac{1}{2}$ miles. Thence for the point under Niachungoat, the south conical hill at the northeast extreme of Kayaksuatilik, passing between an islet and a rock 3 feet above high water just west of it.

Keep the northeast points of Kayaksuatilik close on board to avoid a

rock with 3 feet water on it 800 yards within the southern cone. When Nuvuksoakuluk, the northern cone, is reached, a course WNW. $\frac{1}{4}$ W., $5\frac{1}{2}$ miles, will lead to Hopedale.

Another track from Tikkerasuk is to pass about a mile south of the brown islet, then SW. by W. $\frac{3}{4}$ W., six miles, will lead to a narrow passage south of a conical islet about 300 feet high, under Kayaksuatilik, and south of some remarkable cliffy hummocks; a sharp bend southwest and another north, each about a mile long, lead into an open channel, whence a course N. $\frac{1}{4}$ W., $6\frac{1}{2}$ miles, will bring the vessel within sight of the mission flagstaff at Hopedale.

By the outer track.—From cape Aillik to Gull rock is $1\frac{1}{2}$ miles, from which a course NNW. $\frac{3}{4}$ W., $2\frac{1}{2}$ miles, will lead 800 yards northeast of the reefs that lie between Gull rock and the islet off northern Turnavik island; thence NW. $\frac{1}{4}$ N., $11\frac{1}{2}$ miles, will lead to Nannaktok (White Bear island), passing three-quarters of a mile southwest of a rock that breaks. From Nannaktok to clear the reef off Uyarazuksulik NW. $\frac{1}{4}$ W., $6\frac{1}{2}$ miles, and when that is passed the north end of Gull island may be rounded. From the north side of Gull island SW. $\frac{3}{4}$ S., $2\frac{1}{2}$ miles, will open the passage north of Kingitok between the two large groups of islands, and thence WSW. $\frac{3}{4}$ W., 11 miles, will bring the vessel within sight of the mission flagstaff at Hopedale.

The track of H. B. M. S. Gannet from Nannaktok passed northeast of the first group of islets northeast of Kingitok, whence the route was the same as that described above.

Hopedale to Nain.—From Hopedale the course lies through the narrow channel next north of the anchorage, rounding west of Achvi-toaksoak, a dark-cliffed island; when a course NNW. $\frac{1}{4}$ W., $3\frac{1}{2}$ miles, will lead between Napakataktalik, dark cliffy islands, and a small black rock three feet above high water. From this passage a course N. $\frac{1}{4}$ W., $10\frac{1}{4}$ miles, will bring the vessel between a round islet, 120 feet high, on the east, and Multa, a high sharp-peaked island, on the west side, passing close east of an island 10 feet above high water at three miles, and a cliff-faced island at four miles. From the island 120 feet high a course WNW. $\frac{1}{4}$ W., $2\frac{1}{2}$ miles, leads to the entrance of Windy tickle (Ikirasaluk).

If, after passing the cliff-faced island four miles from Napakataktalik, the ice be close in, a course NW. by W. $\frac{1}{4}$ W., three miles, will lead south of Napatalik, which has a peak 500 feet high, and thence a mid-channel course between the mainland and the group of islands, of which Napatalik is the southern, will lead to Windy tickle.

Kikkertaksoak are the only prominent islands east of these tracks; they have two sharp peaks about the same height, 250 feet, and reefs stretch from and lie off them in all directions.

Two rocks, one of which is 10 feet high and the other awash at high water, lie N. $\frac{1}{4}$ E., distant 1 mile and 2 miles, respectively, from the

east extreme of the eastern Kikkertaksoak. Between the northern of these two rocks and the westernmost of those off Farmyard islands there is a good passage.

Nanuktok (Bears), (Farmyard islands of the fishermen) are a group consisting of two principal and several smaller islets, E. $\frac{1}{2}$ S., 13 miles distant from cape Harrigan, and N. by W. $\frac{3}{4}$ W., 19 $\frac{1}{2}$ miles from Gull island. After a strong breeze of wind many breakers are seen between them, cape Harrigan, and Kikkertaksoak, and great care should be taken when navigating in that locality.

A white rock, 10 feet high, lies SW. $\frac{1}{2}$ S., 3 $\frac{1}{2}$ miles from the south extreme of the southern Farmyard island. Another rock, 30 feet high, bears WSW. $\frac{1}{4}$ W., 3 $\frac{1}{2}$ miles distant from the same island. This rock has two summits lying north and south from each other, the southern of which is bare and white, while the northern has turf on it. No dangers were seen about these rocks, nor between them and the west side of Farmyard islands.

Nunaksáluk (Big piece of land), named cape Harrigan in the previous charts and directions, is the outer point of the Windy tickle group. The islands forming it are about 620 feet high, falling in a series of conical hummocks to the east point. The harbors on the eastern side of the island have not been examined.

Windy tickle (Ikirasaluk) is the channel between Windy tickle islands and the mainland; it consists of two bends, WNW. 2 miles and and W. by S. 2 miles. In the eastern reach a shoal extends off the first bight on the north shore, but by keeping the south shore on board a clear track will be found. On the north side of the western bend is a deep bay with an islet in the middle, making two anchorages. The water is shoal nearly out to this island from the shore, deepening suddenly from nearly dry to 10 fathoms. Vessels should not anchor in less than 12 fathoms nor attempt to go inside the island. The west bend of Windy tickle is shallow from another islet lying west of the one described, and mid-channel should be kept, but even then not more than 1 $\frac{1}{2}$ fathoms can with certainty be carried through at low water. With winds from west to NW. terrific squalls blow down the eastern reach, hence the name.

Cape Harrigan (Tagaulik) is an island half a mile in diameter, with a sharp black summit about 300 feet high, and forming the north extreme of Nunaksáluk; it has a steep face with deep water close-to. The position of cape Harrigan, is latitude 55° 51' 45" N., longitude 60° 20' W.

A low smooth island, 60 feet high, bears SE. 3 $\frac{1}{2}$ miles distant from cape Harrigan and two-thirds of a mile distant from the east coast of Nunaksáluk. Between this coast and the island there appears to be deep water.

On the same bearing, and distant $1\frac{1}{2}$ miles from cape Harrigan, is the north point of a cove in which vessels may find anchorage.

Cape Harrigan harbor, in which several vessels may find anchorage, is situated on the north side of Nunaksáluk, and SSW., a mile distant, from the south extreme of cape Harrigan. The head of the harbor is formed by a large sandy beach.

The main entrance is to the southeastward of cape Harrigan, but there are also two passages for small craft to the westward of the cape, on either side of an island 50 feet high.

Two rocks, one of which dries, and the other with less than six feet water on it, lie SW. by W., distant half a mile and a mile, respectively, from the west extreme of cape Harrigan.

This harbor is the northernmost port to which the Newfoundland mail steamer proceeds.

Umi-a-vik (Wrecked Boat island) has a conspicuous conical summit, 250 feet high, which bears W. by N., distant 4 miles from cape Harrigan.

Two flat islands, 70 feet high, and separated by a narrow channel, which is open when bearing NNE. $\frac{1}{2}$ E. or SSW. $\frac{1}{2}$ W., lie northwest half a mile distant from Umi-a-vik.

Kutalik (Kettle island), Massacre island of the fishermen, is about 200 feet high, and its southern extreme bears W. $\frac{1}{2}$ S., distant $8\frac{3}{4}$ miles from cape Harrigan.

Boulders which dry at low water, and a shoal extend to the southwestward of this point. Mountaineer rock in line with the hollow south of Post hill, Davis inlet, bearing WNW. $\frac{1}{2}$ W., leads to the southward of this shoal and a third of a mile north of North Tikirátechuk (Narrow point).

Mountaineer rock (Adlányavik), 5 feet high, lies SE. $\frac{1}{2}$ E., 2 miles distant from Entry island, and W. $\frac{1}{2}$ S., $1\frac{1}{2}$ miles distant from the south extreme of Kutalik. Its east side may be approached to a distance of 400 yards.

Entry island, 120 feet high, is a small round island, bold-to on all sides, and situated at the eastern entrance to Davis inlet, E. $\frac{1}{2}$ S. $4\frac{1}{2}$ miles from the Hudson Bay Company's post.

Flat island, the eastern part of which bears N. $\frac{1}{2}$ W., distant three-quarters of a mile from Entry island, is about 30 feet high, and flat. Between Flat island and Entry island there is a good passage in mid-channel; the water is shoal between Flat island and Ukasiksalik.

Davis inlet was the name originally given to Jack Lane bay, but is now applied to the water between Ukasiksalik (Freestone) island and the mainland. This inlet, which was explored as far as the Hudson

Bay Company's post, situated on the south side of Ukasiksalik, about $4\frac{1}{2}$ miles west of Entry island, has an average width of 1,200 yards. About 2 miles to the westward of the post there is reported to be a passage named the Rattle, to the westward of Ukasiksalik; but it is narrow and tortuous and the stream runs with great strength, as suggested by its name. Newfoundland fishing schooners, however, occasionally use it when taking the inside "runs," to avoid the ice.

Pigeon island, in two parts, 30 feet high, bears SW. $\frac{3}{4}$ S., 1,400 yards distant from Entry island. There is a passage for large vessels between Pigeon island and Entry island by keeping nearer the latter; between the main shore and Pigeon island the passage is nearly dry at low water.

Smooth Land point bears W. $\frac{1}{2}$ S. $1\frac{1}{2}$ miles distant from Entry island. Between this point and Pigeon island the shore is strewn with boulders that dry at low water, a few of which extend some distance into the channel.

Red island, 20 feet high, the northern extreme of which bears W. $\frac{1}{4}$ N., 1,400 yards distant from Smooth Land point, is joined to the shore by stones, which only cover at high-water springs. On it is situated the summer residence of one of the families who trade with the Hudson Bay Company.

Between Red island and Smooth Land point are two bights at high water.

Red island rock, with six feet water over it, bears NE. $\frac{1}{4}$ E. 800 yards distant from Red Island, and NW. $\frac{1}{2}$ W. the same distance from Smooth Land point.

Vessels should pass between this rock and Ukasiksalik by keeping the north fall of Kutallik open north of the summit of Entry island, bearing E. $\frac{1}{2}$ S.

From Red island the coast trends W. by S. nearly 2 miles, to Twelve o'clock mark.

Twelve o'clock mark is a conspicuous vein of dark rock, extending from the water to the summit of the cliffs of lighter colored rock. It derives its name from bearing nearly south from the Hudson Bay Company's post and thus serves to indicate the approximate time of noon.

At low water the boulders extend from the shore to a line joining this cliff and Red island.

A bank is reported, the northern edge of which lies NE. by E. three-quarters of a mile distant from Twelve o'clock mark.

The Post (Hudson Bay Company's) consists of several white houses off which is a wharf. A small staff is maintained here, who are visited by the steam-vessel Labrador on her way to Ungava bay and again on her return to Rigoulette. Furs, seal oil, and salted trout are the chief exports. Wood and water may be obtained here.

Position.—The post is in latitude $55^{\circ} 51' 45''$ N., longitude $60^{\circ} 49' 45''$ W.

Post hill, 855 feet high, slopes to the south shore of Ukasiksalik and is situated two-thirds of a mile distant, to the northwestward of the Post.

The coast of Ukasiksalik between the Post and Flat island is composed of a succession of bights and rounding points, the boulders drying at low water nearly to the line of the latter.

The bar, a detached cluster of rocks, the highest part of which is one foot above high water, bears SE. by E., 550 yards distant from the wharf. There is a passage for a flat-bottomed boat inside it at low water.

Big boulder, a large isolated granite rock, measuring 25 feet each way, is a conspicuous feature on this shore, ENE. $\frac{3}{4}$ E. three-quarters of a mile from the bar.

The flood stream here runs to the westward and the ebb in a contrary direction, with a velocity of 2 to 3 knots an hour at spring tides.

Duck rock, N. $1\frac{1}{2}$ miles distant from Entry island, is a small white rock 20 feet high.

Newfoundland harbor, a small bay on the east shore of Ukasiksalik, is reported to contain good anchorage, and is occasionally much resorted to by fishing-craft.

Solomon islands are two large islands, separated by a channel a quarter of a mile wide. A small island, 50 feet high, lies at the southwest extreme of the western and larger island, and bears NE. by E. a mile distant from Entry island.

Akpalik (Tinker island), the northeasternmost of two small islands, bearing northeast, 1,000 and 800 yards distant, respectively, from the northeast extreme of the eastern of Solomon islands, is a small, conspicuous, tub-shaped island, white in color, and 50 feet high.

A rock, awash at high-water springs, bears N. $\frac{1}{2}$ E., $1\frac{1}{2}$ miles distant from this island.

Katányak, an island with a double summit, lies E. $\frac{3}{8}$ N. $1\frac{1}{4}$ miles distant from Áphalik.

A small, dark, sharp-topped rock, 10 feet high, bears NE. by N., half a mile distant from the center of this island.

Between Katányak and Kutallik are three other islands, the middle one of which has a sharp dark summit about 150 feet high.

Clinker rock, having less than 6 feet water, is stated, on the authority of the Master of the Moravian mission ship *Harmony*, to lie in latitude $55^{\circ} 57' 30''$ N., longitude $60^{\circ} 5' 30''$ W. This position was

determined astronomically, and is not dependent on the position of the land.

Nunáksuk (Little land), 100 feet high, bears N. by W. $\frac{3}{4}$ W. $11\frac{1}{2}$ miles distant from cape Harrigan, and is bold-to on the south and east sides. This island may be known by three lumps on its summit. A single rock, 10 feet high, lies WSW. $\frac{1}{2}$ W., distant half a mile from Nunáksuk.

A cluster of four or more rocks, the highest being about 10 feet high, bears SW. by W. $\frac{1}{2}$ W. $2\frac{3}{4}$ miles distant from Nunáksuk.

A flat rock, 10 feet high, lies almost directly in the line, and midway between Nunáksuk and cape Harrigan.

Directions.—Approaching Davis inlet from eastward, a course WSW. $\frac{3}{4}$ W. for $8\frac{3}{4}$ miles from cape Harrigan will lead to the southwest extreme of Kutallik, to clear the shoal off which Mountaineer rock should be brought in line with the hollow west of Post hill, over Davis inlet, bearing W. by N., and kept so until within half a mile of Mountaineer rock. Vessels may pass at a distance of 400 yards to the northeastward of this rock. Entry island should then be steered for, and may be passed at 400 yards distant on either side. When near Red island rock the north fall of Kutallik should be brought open of the summit of Entry island, bearing E. $\frac{1}{2}$ S., to lead between Red island rock and Ukasiksalik. When Red island bears S. the danger will be passed.

Vessels should then keep nearer the Ukasiksalik shore than that of the mainland to avoid the bank reported off the latter.

After passing the bar good anchorage may be found off the Post, with the bar bearing E. $\frac{1}{2}$ S.

From Smoothland point the least water found by the *Labrador* on this track was $5\frac{3}{4}$ fathoms.

Approaching Davis inlet from Nunáksuk vessels may pass 400 yards south of the latter and shape a course SW. $\frac{3}{4}$ S. for Entry island, passing between the rock awash at high water and an island, 100 feet high, situated NE. by E. $\frac{1}{2}$ E., half a mile distant from the southeast extreme of Ukasiksalik. This island may be known by a sharp dark rock, 20 feet high, a short distance from the east extreme, 50 yards from which in the same direction is a small rock awash. Pass between Entry and Flat islands and proceed as before directed.

A course WNW. $\frac{1}{2}$ W. $10\frac{3}{4}$ miles from the west entrance of Windy tickle leads to a group of low islets, passing south of Massacre island (Kutallik), about 200 feet high, close-to and east of a low rock five fathoms above high water $1\frac{1}{4}$ miles farther on, and crossing the mouths of two deep inlets, named Jack Lane and Jem Lane bay.

Davis inlet lies next north of Jem Lane bay. It is reported that a strong tide-rip and overfall prevails at the narrow shallow entrance to this inlet, and that sailing vessels should not take the passage except at slack water and with a commanding breeze.

After rounding the low group of islands above mentioned the coast of Ukasiksalik (Freestone island) should be kept on board till the east extreme is reached, when two tracks present themselves. The western is convenient as being free from field-ice at an early period of the season, and the fog rarely fetches in, but the eastern is more direct and is on the seaboard.

By the west track.—The coast of Ukasiksalik must be rounded at about 400 yards distant; the north shore has deep bays with clifty sugar-loaf hills forming the points; and passing south of some smooth sloped greenish islands, the south point of which is foul for a short distance off. From this point a course WNW. $\frac{1}{4}$ W. 5 miles leads between a dark clifty island on the south side with rugged points ending in islets; and on the north side some low islands, through the channels between which the outer islands can be seen. An island about 200 feet high will then be seen. Pass south of this island and a low black islet lying off the west extreme. Sunken rocks lie west of this islet and are nearly connected with the island just passed.

From this low islet a course NW. 5 miles leads west of Tunungayualuk, a large island with steep tree-covered sides, to a narrow tickle, passing east of a group of islets conical and mound-shaped, at the back of which is situated Merrifield mountain, a square hill about 1,700 feet high. Tunungayualuk should be kept at least 400 yards off when rounding the W. point to avoid a shoal stretching off it a short distance. Passing east of some low islets two channels will be disclosed; the western, narrow, with only 2 fathoms water in it, opens at the west end into the bay, on the west shore of which Zoar, a Moravian missionary station, is situated. From the west end of this channel a course should be steered to leave Taktuinak (the island between the two channels) half a mile off to avoid a rock that breaks, and thence NNE. $\frac{1}{4}$ E. 3 miles nearly will lead to a low island promontory, on the east extreme of which is an Eskimo hut.

To avoid this shallow channel keep mid-channel between Tunungayualuk and Taktuinak, the next island north, until the second channel running north is open. Taktuinak is surmounted by a hill 600 feet high, that falls in a steep cliff over east extreme; the northern portion has a sloping greenish hill. Between the two is a deep gully in the hills.

Tunungayaksoak is situated northeast of Taktuinak and is wedge-shaped, the summit nearly over the southwest extreme, off which close to is a shoal. Proceed between Taktuinak and Tunungayaksoak, passing east 200 yards from an islet 5 feet above high water. From the north end of this channel the low island promontory, on which is the Eskimo hut, will be seen NW. $1\frac{1}{2}$ miles. From this hut a course N. 5 miles will lead close west of Achpitok (an island with a deep cove, in which anchorage may be had in 12 fathoms) and between it and the mainland about Zoar. From Achpitok island a north course will lead

to an islet about 30 feet high, rounding east of which a course of NW. $\frac{1}{2}$ N. $5\frac{1}{2}$ miles will lead close west of Nuasornak (Dog), a conical island 400 feet high, and east of a dark islet 40 feet high, to the shore of Kikkertavak, a large island 600 feet high. This shore should be kept about 400 yards distant till the narrow channel between it and Taktuk (Fog) is reached; passing west of Nochalik, a high island with a deep ravine through the north extreme, nearly disconnecting a portion; west of Nukasusutok, a dark island with a summit about 800 feet high falling in a cliff face on the north; and south of Niatak, an island with two prominent summits about 300 feet high, smooth slopes on west side and deep bays with cliff shores on the east.

Taktuk is a small island about 150 feet high, with an Eskimo hut at the west extreme; the west shore is fringed by boulders, and the shore of Kikkertavak, immediately opposite, has some low rocks a short distance off.

From this narrow passage NNW. $\frac{1}{2}$ W. 3 miles will pass east and north of Palungatak, an island about 600 feet high, with a mound nearly detached at the east end. Off the northeast side boulders extend nearly half way to the opposite shore, and the channel between should be navigated with great caution; 4 fathoms of water can be carried through nearer the north than the south shore.

Tunnulusoak (Pownal or Paul island) is $16\frac{1}{2}$ miles long, situated northeast of Palungatak, and nearly divided by two deep inlets running from east and west extremes. Off the southwest side, opposite Palungatak, is a small promontory ending in a rocky mound, with deep bays on each side filled with boulders.

Ford harbor is at the east extreme of this island, formed by a flat promontory on the south composed of a series of terraces. The harbor may be seen from the west over the marsh that joins this promontory to the mainland. Boulders fringe the shores of the harbor, but the water deepens suddenly to 10 fathoms. Anchorage may be had in the bay north of Ford's house in 13 to 16 fathoms, mud, good holding ground.

Nain.—From the channel between Palungatak and Paul island the coast of the latter should be kept about half a mile distant, with a general course of N. for $4\frac{1}{2}$ miles, when the southeast point of Nain will bear about NW. 400 yards distant. Rounding this, the Moravian mission station at Nain will be seen, off which anchorage may be obtained in 13 fathoms, mud.

The rule is universal for this coast that the water deepens suddenly from the line of the boulders. To mark the north and east limits of the boulders at Nain four small *white* beacons have been erected and vessels must anchor before either pair comes in line.

Tides.—It is high water, full and change, in Nain harbor at 7h. 9m., springs rise $6\frac{1}{2}$ feet.

Nain to Ford harbor.—Retrace the track described above till the shallow passage between Palungatak and Paul island is passed, when a mid-channel course should be kept between the latter and Taktuk, Niatak, and Kugjautak (Wedge), a general direction E. $\frac{1}{2}$ S. for $13\frac{1}{2}$ miles, when an islet, Amushavik, will be seen 800 yards off the south-east point of Paul island. Pass between them and round Paul island shore to Ford harbor.

From Ford harbor by the inner route there is a good passage south of Niatak, a course SW. W. by $\frac{3}{4}$ W. $7\frac{3}{4}$ miles from Amushavik will lead north of Nukasusutok. Bounding this island Nochalik should be steered for, but vessels should use this channel with great care, as there is a rock off the low islets west of Nukasusutok.

Windy tickle to Ford harbor by the outer track.—Steer as before described till the east point of Ukasiksalik (Freestone island) is reached. From this N. by W. $\frac{1}{2}$ W. 4 miles nearly leads to Ayagatot, a barren island with a round summit about 250 feet high. A rock lies S. from this island about 400 yards. A smaller island, which has a sunken rock near its west extremity, lies off the southeast side of Ayagatot. From the west point of Ayagatot N. $\frac{3}{4}$ W. 9 miles will lead to Kikkertaksoak (Spracklings island), but the islets nearly in the track must be kept a little farther off than the direct course leads to avoid any spurs stretching off them.

Kikkertaksoak (Spracklings island) is very remarkable, being the outer high island and having two sharp peaks at the south end 465 feet high and a high mound at the north. There is a small harbor on the east side, sheltered by some islets. The south summit on Spracklings island is in latitude $56^{\circ} 8' 15''$ N., longitude $60^{\circ} 45'$ W.

Uvingiayuk (Lopsided island) is a remarkable dome-shaped rock, about 400 feet high, SW. by W. $\frac{1}{2}$ W., $2\frac{1}{2}$ miles from Kikkertaksoak.

Hare island (Ukallik) is an island with two summits, about 200 feet high, ENE. $\frac{1}{2}$ E. 5 miles from the north extreme of Kikkertaksoak. This is the island usually made by the Moravian mission ship for going either to Zoar or to Nain.

Kidlit (outside islands) lie ENE. 10 miles from the south end of Spracklings island and N. $9\frac{1}{2}$ miles distant from Nunaksuk; the western and higher island is about 100 feet high; the eastern, 40 feet high, is divided into two parts, and may be approached to within half a mile and probably nearer.

Two rocks, 30 feet and 50 feet high, bear NW. by N. $1\frac{3}{4}$ miles distant and N. by W. $\frac{3}{4}$ W. three miles distant, respectively, from the western Kidlit.

Spracklings island to Zoar.—A course WNW. $\frac{1}{4}$ W. 5 miles will lead north of a group of small islets; the western, Pakertuk, is 140 feet high, whence W. $\frac{1}{4}$ N. $5\frac{1}{2}$ miles will bring the vessel to the north point of Tunungayulak, a little hillock joined to the main island. Keep this island shore about half a mile distant, and steer SW. 5 miles mid-channel between that island and two islands, Aklatalik and Tunungayaksak, north of it, the former about 500 feet high, with numerous conical summits, and passing close to an islet about 60 feet high. This will lead to the entrance of the channel between Taktuinak and Tunungayaksoak, already described.

Spracklings island to Ford harbor.—The natives report that a clear passage will be found between these places by steering NW. $\frac{3}{4}$ N. 15 miles to another island called Kikkertaksoak (Big island), about 300 feet high and flat in outline, thence N. 4 miles to Sioralik or Sandy island, so named from the color. The west point of Sandy island must be kept close on board to avoid a shoal, whence a course NW. $\frac{1}{4}$ W. for 6 miles will lead to Ford harbor.

Flat rock, 40 feet high, bearing N. $\frac{1}{2}$ W. distant $9\frac{1}{2}$ miles from the eastern Kidlit, is in two parts, lying northeast and southwest of each other, and is bold-to on the northeast side.

Negro island, the north extreme of which bears WSW. $\frac{1}{4}$ W. $2\frac{1}{4}$ miles distant from Flat rock, has three summits, the center of which, 150 feet high, is round and very black, contrasting strongly with the remainder of the island, which is light in color. The island derives its name from this peculiarity.

Pyramid island, so named for its appearing as one pyramid when seen from the eastward and is split into two of the same shape when seen from the southward, is about 200 feet high, and bears NW. $\frac{1}{2}$ N. 5 miles distant from Flat rock.

A breaker lies N. by E. $\frac{1}{2}$ E. a quarter of a mile distant from the north extreme, and the outer of three rocks bears ESE., a mile distant, from the south extreme of Pyramid island. This rock is 40 feet high, and has apparently a large boulder perched on the center of its summit.

The southeasternmost rock of Hen and Chickens bears N. by W. $\frac{1}{4}$ W. $4\frac{1}{2}$ miles distant from this rock.

Intercourse is kept up occasionally during the winter by means of dog-sledges between Rigoulette, Hopedale, Davis inlet, Nain, Zoar, Okkak, Hebron, Ramah, and Nachvak.

Hen and Chickens are a chain of seven rocks, above high water, lying WNW. and ESE. of each other; the middle and highest is about 40 feet high, and situated in latitude $56^{\circ} 29' 30''$ N., longitude $60^{\circ} 36' W.$, NNW. $\frac{3}{4}$ W. $8\frac{1}{2}$ miles from Flat rock.

Three Brothers, situated NW. by N., nine miles distant from Hen and Chickens, are three islets, the southernmost and highest being about 60 feet high.

Sentinel rock, so named from its isolated position, bears N. $\frac{3}{4}$ E., 10 miles distant from Three Brothers. It is a dark-gray rock, about 80 feet high, falling steeply to the eastward and sloping gradually in the opposite direction and apparently bold-to.

A small round island, 100 feet high, bears N. $\frac{3}{4}$ W., $2\frac{1}{2}$ miles distant from Three Brothers. A rock 20 feet high lies south a quarter of a mile distant from it.

A long and narrow island, with a broad summit 400 feet high near the western end, is situated SW. 3 miles distant from Sentinel rock.

On the same bearing from Sentinel rock and distant 9 miles is the north end of an island about $1\frac{1}{2}$ miles in diameter, with three equally elevated summits about 400 feet high.

Two small white islets about 70 feet high are situated 2 miles to the westward of this island.

Notch rock lies W. by N. $3\frac{1}{2}$ miles distant from Sentinel rock, is about 60 feet high, and is conspicuous from the eastward by a remarkable gap in its southern side, from which it derives its name.

Three islands are situated NW. $\frac{3}{4}$ W. 9 miles distant from Sentinel rock and close to what is apparently the east end of a large high island. Nothing was seen to the eastward of this bearing.

No appearance of shoal water was seen to the eastward of any of the rocks and islands described above.

Mount Thoresby, over port Manvers, may be easily known by a steep fall to the northward, in three steps, and a long smooth slope to the southward, terminated by a steep fall to the low land in this locality. The summit of mount Thoresby is in latitude $56^{\circ} 53' N.$, longitude $61^{\circ} 18' W.$

Mount Thoresby, as well as the adjacent land, is said to be strongly impregnated with iron ore.

Port Manvers was surveyed by Captain Manby, H. B. M. S. *Thalia*, in the year 1808, and is described as a safe and commodious harbor.

Mr. Fletcher, master of H. B. M. S. *Medusa*, which ship was in company with the *Thalia*, gives the following directions: Mount Thoresby, by which the entrance of port Manvers may be identified, is a remarkable nill, having an abrupt descent to the northeast. Pass Willis rocks, which lie near the entrance of the harbor, on the starboard hand about 200 yards distant, then steer in for the harbor, keeping the west end of Bouverie island open of Medusa bluff, which will lead clear of the sunken rocks off Fletcher point. Steer with these marks on until the bluff point of Mount Thoresby is open of Fletcher point; the vessel may then steer to the anchorage on either side of the port.

Willis rocks always show above the water, and the other rocks being of white appearance show before the vessel is near them. The water also is so clear that the bottom can be seen in 8 or 9 fathoms water. There is, however, a dangerous patch of rocks which seldom breaks, lying W. by N. from Saddle island; there is also a ridge of rocks lying between Bouverie and Manby island.

In the fairway a depth of not less than 16 fathoms will be found. The water is deep in the center of the port. The bottom is all soft and good for anchorage. Medusa bay, on the south side of the port, is most conveniently situated for wood and water; anchorage may be taken 600 or 800 yards off shore. The anchorage in Caplin bay, on the north side, is not so convenient.

Large quantities of codfish and caplin were caught.

Tides.—It is high water, full and change, at 6 hours; springs rise 5 feet.

Kig-la-pait is the high land to the northward of port Manvers, so named from the jagged appearance of the hill-tops on the northern portion. The highest part is a broad round summit not less than 2,000 feet high; both south and north ends of this coast range fall sharply to lowland.

Saddle island is so named from two summits, each about 500 feet high, joined together by a sharp ridge, and is situated in latitude $57^{\circ} 35' N.$, longitude $61^{\circ} 19' W.$, NNW., 49 miles distant from Sentinel rock, approximately.

The Stirrups, two rocks, 100 and 50 feet high, respectively, are situated SE. by E., 3 miles distant from Saddle island.

Nanuktut (White Bear island), improperly called cape Mugford by some of the Newfoundland fishermen, is the most remarkable and unmistakable land on the Labrador coast; its eastern side bears from the eastern side of Saddle island NNW. $\frac{1}{4}$ W., distant 20 miles, and is surmounted by a number of apparently inaccessible peaks, the three highest of which are situated at the north, west, and east extremes, respectively, and are probably not less than 1,500 feet high; that at the east extreme being isolated, falling perpendicularly to the sea, and sloping steeply on the north side to a low neck 30 feet high, by which it is connected with the remainder of the island.

A bight about 400 yards broad is situated between this hill and the outer peak on the north point.

The east side appears bold-to, but the north shore is more shelving, with boulder beaches at intervals.

This island is lighter in color than the neighboring land.

Na-nu-ya-tuk is a small island about 100 feet high, bearing SW. a little more than a mile distant from the southeast point of Nanuktut.

The coast to the westward of Nanuktut is very high, terminating abruptly to the southward in a remarkable hill 2,000 feet high, named the Table, from its shape, and situated at the south end of Oguna-lik (Cod island). This island has two other dome-shaped hills, 1,500 feet high, on the east side, and is separated from the mainland by a narrow passage, through which the Moravian missionary bark *Harmony* is reported to pass on her course between Okkak and Hebron. The east side of this island is indented by several narrow deep bays, the southern of which immediately north of Table hill is reported to contain good shelter.

Bishop's Mitre is a remarkable hill, situated W. by S., approximately, from the north point of Nanuktut; the gap at its summit, which has suggested the name, is open on all bearings.

Cape Mugford slopes from Bishop's Mitre, and forms the southeast head of a deep narrow inlet extending some miles to the westward of Bishop's Mitre. A small conical island lies at the mouth of this inlet. Cape Mugford (northeast extreme) is in latitude $57^{\circ} 55' N.$, longitude $61^{\circ} 35' W.$

Finger hill, at the northern end of this high piece of land, similar in shape to Table hill at the south end, is so named from the peculiar finger-shaped rocks, which show conspicuously when bearing between SW. and SSW.

An inlet extends some distance to the southward of Finger hill, at the entrance to which is a small conical island. The contour of the land forming the southern entrance point of this inlet resembles very much the human face.

Watchman island, in latitude $58^{\circ} 13' N.$, longitude $62^{\circ} 4' W.$, bears NW. $\frac{3}{4}$ N. 22 miles distant from the eastern part of Nanuktut, and is about 700 feet high. Near it are a smaller island about 200 feet high, and four islets ranging from 30 to 50 feet in height, the northeasternmost being the lowest. Fishing vessels are said to anchor under the west side of this island.

The dark round summit of Watchman island is situated at the eastern end, which is remarkably white when seen from the southward, and serves as a good mark in making Hebron, the Moravian missionary station to the west of it. The island is apparently bold to on its eastern and northern sides.

Current.—A southeasterly current of half a knot an hour was noticed here.

Hebron is reported to contain good shelter from all winds excepting southwest gales.

Kikkertaksoak, 300 feet high, bears NW. $\frac{3}{4}$ W. 14 miles distant from Watchman island. It has a smooth round summit and slopes like

a whale's back, and may be recognized by the small deep gulches on the eastern side.

Another island, bearing W. $\frac{3}{4}$ N. from Kikkertaksoak a mile distant, is about the same size and 150 feet high.

Uivuk bears NW. 21 miles distant from Watchman island. The summit is about a quarter of a mile to the westward of the extreme and is about 1,000 feet high. This cape is the dividing point between Saglek bay and bays to the westward of Watchman island; it falls steeply to the sea and then rises gradually to its broad conical summit, from which it slopes gradually to the westward.

The Domes, two conspicuous round hills about 2,000 feet high, are situated 5 miles island from Uivuk.

Saglek (Low island) bay, so named from the principal anchorage being to the westward of an island of that description, lies north of Uivuk and has two entrances, one on either side of Kikkertaksoak (Big) island, the northern one being the broadest.

The north point of Kikkertaksoak terminates in a remarkable conical head 700 feet high, falling perpendicularly to the sea.

Anchorage cove, on the southeast side of that island, is reported to contain good shelter from most winds. The northeastern head of this cove is a conspicuous bluff, having a broad band extending from the water to beyond the top of the cliff on the northeastern face.

I-guk-shuak (Galley island) is a small island situated close to the north side of Uivuk, and is 300 feet high.

Iti-gai-ya-vik (Cold-foot cape), on the north side of the northern entrance, is easily recognized by its broad bands of dark rock. It is situated in latitude $58^{\circ} 43'$ N., longitude $62^{\circ} 51'$ W.

This and the north point of Kikkertaksoak are excellent marks to identify the northern entrance of Saglek bay.

The whole neighborhood of the outer coast of this bay is characterized by numerous trap dikes, which extend vertically through the lighter colored rock. This peculiarity ceases 3 miles north of Iti-gai-ya-vik.

Kangalasiórvik is an island 300 feet high, situated to the southward of Iti-gai-ya-vik.

Mount Blow-me-down, situated 8 miles northwest of Iti-gai-ya-vik and 2 miles from the coast, is a remarkable square-topped hill, not less than 3,000 feet high, and may be seen from a distance of 50 or 60 miles on a clear day to the northward.

Shug-vi-luk is situated 3 miles north of mount Blow-me-down, and has a conspicuous island in the middle 100 feet high.

Naksarektok (Gulch cape), in latitude $59^{\circ} 1'$ N., longitude $63^{\circ} 7'$ W., bears NNW. $\frac{3}{4}$ W. 37 miles distant from Uivuk, and has a dome-

shaped summit about 1,000 feet high, falling steeply on all sides. It is so named from a low neck which connects it to the adjoining high land, over which the romatiks (dog sledges) pass in winter. A southerly current of quite two knots an hour runs close past this cape.

Nullataktok (Blow-hole for seals), sometimes called Slate bay, is situated to the southward of Naksarektok and expands into several narrow long arms, in the southernmost of which is situated the Moravian mission station of Ramah.

A jagged group of hills, 3,000 to 4,000 feet in height, is situated to the westward of Ramah and Shug-vi-luk.

Nachvak bay.—Razor-back point and White Handkerchief serve as marks for recognizing Nachvak bay. This inlet, which has an average width of a mile, was explored as far as the Hudson Bay Company's post (situated about 15 miles from the entrance), but is reported to extend about 10 miles farther up. The land on either side is high, the cliffs in some places falling perpendicularly from elevations of 1,000 feet.

Passage reef, a dangerous rock, with little water on it, lies E. $\frac{1}{2}$ N. 2 miles distant from Kamasuk and half a mile from the nearest shore, abreast a conspicuous round beach and gap in the coast cliffs. The passage into Nachvak bay, used by the *Labrador*, is between this rock and the shore, which is to the westward; the shore should be kept on board. No natural leading-mark could be found for the passage.

When the reef is not breaking its position may be known by the right extreme of Razor-back point being in line with the right extreme of Nanuktok, bearing N. $\frac{3}{4}$ W., which mark leads over the north end of the shoal.

Directions.—Kamasuk is bold-to, after rounding which the middle of the bay should be kept till the Hudson Bay Company's post is reached, when fair anchorage may be obtained; but the water is deep, and heavy squalls occasionally prevail.

Silver waterfall, $2\frac{1}{2}$ miles to the eastward of the Hudson Bay Company's post, is very conspicuous, and is a good indication of the approach to the post.

There is excellent anchorage in 7 or 8 fathoms water in Tin-ya-vik (Shoal-water bight), the second cove on the south side, to the westward of Kamasuk. Also off Ak-la-vik (Black-bear cove), in 7 or 8 fathoms water.

Water may be obtained in Shoal-water bight.

Tides.—It is high water, full and change, at Nachvak bay at 6h. 55m.; springs rise 6 feet. The tidal streams are feeble in this bay, probably seldom exceeding the velocity of a knot an hour.

Post.—The Hudson Bay Company's post is visited only once a year by the steam vessel *Labrador*. The year's supplies are then received, including firewood, there being none in this vicinity, and the catch of furs, seal-oil, and trout made during the past year is taken away.

Eskimos occasionally come here from Ungava bay in the winter time with their *romatiks* (dog-sledges), making the journey sometimes in less than two days. Twelve Eskimo families live in this vicinity, and seven more between this and cape Chudleigh.

Position.—The position of the Hudson Bay Company's post is latitude $59^{\circ} 4' N.$, longitude $63^{\circ} 51' 30'' W.$

North head of Nachvak bay is a bluff, bold looking, and comparatively low point opposite Kamasuk.

Naked man point is SW. $\frac{1}{2}$ S. $1\frac{1}{2}$ miles distant from North head, and is so named from its having a statue-like stone 15 or 20 feet high near the water's edge, visible when to the westward of it.

Between the two last-mentioned points and Razor-back point is a small sandy cove.

Razor-back point bears N. $\frac{1}{2}$ E. 7 miles distant from Kamasuk, and is surmounted by a sharp ridge, culminating in a high peak named mount Razor-back, the southern side of which falls smoothly, and the northern in a succession of steps.

Southeast rock, a shoal with less than 3 fathoms water over it, bears NE. by E. $\frac{1}{2}$ E. $4\frac{1}{2}$ miles distant, and Big reef, a rock which dries at low water, with breakers extending half a mile to the southward of it, bears NE. $\frac{1}{2}$ N. $2\frac{1}{2}$ miles distant, respectively, from Kamasuk.

A vessel should not pass between these dangers and Passage reef. The *Labrador* has always entered and left Nachvak bay by the southern passage, which, no doubt, is a safe course for a steam vessel, or sailing vessel with a commanding breeze, but nothing was seen breaking off the north shore between the entrance and Razor-back point excepting the three reefs already described, although a heavy swell was rolling on this occasion.

A rock with 15 feet above high water, with a reef extending half a mile distant to the southwestward of it, bears NNE., 2 miles distant from Razor-back point.

Nanuktok (White Bear cape), a projecting light-colored cliffy headland, falling perpendicularly from a sharp apex, bears N. $\frac{3}{4}$ W. about 6 miles distant from Razorback point. Between the cape and point is a deep circular bight.

The White handkerchief, covering about two acres and extending from the water's edge to about 500 to 600 feet above it, is a very conspicuous large square of light-colored rock, situated at the north end of the bight between Razor-back point and Nanuktok. This and mount

Razor-back are unmistakable marks for recognizing Nachvak bay. This bay may be considered the boundary between the bold and the shoal coasts of Northern Labrador.

Davidson rock, with less than 3 fathoms water over it, bears about NE. by E. $5\frac{1}{2}$ miles distant from Nanuktok.

Alexander shoal, with about 3 fathoms water over it, lies N. by W., 10 miles distant from Davidson rock and about the same distance NE. by N. of the mouth of Kamaktorvik bay.

Kamaktorvik bay is said to be a good harbor, and Newfoundland fishing craft have been seen at anchor here; but the approaches do not look inviting to a stranger.

Four Eskimo families live here, and three between this and cape Chudleigh.

To the westward of this bay, and some little distance inland, is a high broad mountain about 4,000 feet high.

Four peaks is the name given to that number of very high hills between the above-mentioned bay and Eclipse harbor, the northernmost one being separated from the remaining three by a deep valley. This is the highest land on the Labrador coast and a good mark for making either Eclipse harbor or Kamaktorvik.

Half way between Eclipse harbor and cape Chudleigh is a square headland, prominent from the southeastward by its steep fall to the northeastward.

Eclipse harbor, so named by the United States expedition which visited the harbor for the purpose of observing the total eclipse of the sun, 18th July, 1860, is in latitude $59^{\circ} 48' N.$, longitude $64^{\circ} 7' W.$ The steam-vessel *Bibb*, conveying the expedition, approaching the land cautiously entered about midnight into a channel which proved to be the north inlet at Aulezavik island, and anchored in Eclipse harbor early on the morning of the 14th July.

This harbor, which was found singularly free from mist, is described as affording admirable anchorage, the holding-ground being especially good.

Tides.—the rise of the tides at springs, which occurred on 18th July, was $5\frac{1}{2}$ feet.

Ice formed in Eclipse harbor behind Aulezavik island on the morning of 14th July. Part of the western coast had an ice-pool 3 to 4 feet thick, which remained during the stay of the expedition; and immense fields of ice lay on the sides of the mountains, from which streams of water ran constantly.

Winds.—On the Labrador coast it was remarked that calms were of short duration, seldom lasting more than a single day. The gales were

frequent and very violent; that experienced by the *Bibb* while in Eclipse harbor lasted three days, and commencing at E. went round the compass by way of north to S., and was the heaviest gale experienced on the coast; it extended far to the southward and wrecked many vessels in the gulf of St. Lawrence.

Fog.—In the month of July, 1860, the fogs on the coast of Labrador were neither so dense, so enduring, nor so frequent as those which beset the bay of Fundy and the northern section of the United States coast at the same season.

Kikkertaksoak (cape Chudleigh), 1,500 feet high, is the southeastern of two high islands, apparently bold-to, and makes, when seen from the southeastward, an island with two lumps, the western being the higher, from which appearance it is easy of recognition; the northern extremity of the island is in latitude $60^{\circ} 25' N.$, longitude $64^{\circ} 11' W.$

The northwestern of these two islands is about 1,000 feet high. There is every appearance of deep water between these islands and between both and the main shore.

From the northwestern island the Labrador coast trends S. by E. a distance of about 7 miles to an opening, which may be the eastern entrance to the reported passage through into Ungava bay.

Three rocks lie SSE. $\frac{3}{4}$ E., $5\frac{1}{2}$ miles distant from Kikkertaksoak, the center and highest one being about 50 feet above high water; the other two are about 30 feet high.

An isolated rock, 30 feet high, is the northern of the outlying rocks which skirt the coast between this and Nanuktok, and bears S. by E. $\frac{1}{2}$ E. 3 miles distant from the east part of Kikkertaksoak.

From Kikkertaksoak the coast of cape Chudleigh trends WNW. 10 miles, thence W. $\frac{1}{2}$ S. a farther distance of 6 miles to Shatokchiak (Flat point), the turning point into Ungava bay.

A well-sheltered inlet or tickle, east of which the coast is composed of low cliffs, rising rapidly to land about 500 feet high, is situated NW. by W. $\frac{3}{4}$ W. 8 miles distant from Kikkertaksoak. The coast for 4 miles E. $\frac{1}{2}$ N. of Shatokchiak is broken up into small islands.

Button islands are composed of two or more large islands. The east point of South Button island bears N. by W. $\frac{3}{4}$ W. 8 miles distant from Kikkertaksoak, and a detached island 100 feet high, off the west point of West Button island N. by E. 6 miles distant from Shatokchiak.

South Button island is about 500 feet high, is faced by small cliffs, and has two smaller islands at the south and east extremes. West Button island has generally the same appearance, but is much higher. There is apparently a good passage between South Button and West Button islands. From Kikkertaksoak more of the Button islands could be seen to the eastward of South island, but owing to the mist only the southern portion of them could be placed on the chart.

The detached island 1 mile to the westward of West Button island is a round clifty island about 100 feet high.

Gray strait, the passage between cape Chudleigh and Button island, is apparently clear of shoals. The narrowest part at the eastern entrance is not more than 4 miles wide.

Tides.—The flood and ebb streams in Gray strait are of nearly equal duration and strength, the former running into and the latter out of Ungava bay. The average velocity is probably 4 to 5 knots an hour off Shatokchiak and Kikkertaksoak.

Race.—There is a considerable race in Gray strait even in fine weather, and when the stream is opposed by strong winds a breaking sea is formed, which is dangerous to small vessels.

Winds.—During strong westerly winds in Ungava bay the squalls in Gray strait are terrific, often succeeded by a calm when to the southward of Kikkertaksoak.

Shatokchiak (Flat point), a small island, 30 feet high, is the termination of the northwest part of the peninsula of cape Chudleigh (Kidlinek), and from this point the east shore of Ungava bay trends S. by W. 4 miles to an islet 40 feet high, close to the coast, which then recedes into a deep inlet, that may possibly be the western entrance to the reported passage through to the Labrador shore. The land in this locality is low, and it is said continues the same characteristic features to the Kôksoak river. Shatokchiak is in latitude $60^{\circ} 29' N.$, longitude $64^{\circ} 44' W.$

Na-ko-ái-yet bears E. $\frac{1}{2}$ S. 16 miles distant from Cong-na-ráu-ya, the east entrance point to Kôksoak river, and is the most outlying island, in this neighborhood.* It may be recognized by the summit, 100 feet high, being near the southwest extreme, with a long low tail extending from it a mile distant to the northeastward. When Na-ko-ái-yet bears to the northward of northeast, a second island, situated a short distance to the southeastward of it, becomes apparent.

Kôksoak (Big) river.—The mouth of Kôksoak river is situated SW. $\frac{1}{4}$ S. 155 miles distant from the western entrance to Gray strait. In ordinary weather the high land of the Labrador shore may be seen towering above the scarcely discernible coast of Ungava bay while traversing the first 60 or 70 miles of the course, after which little is seen till near Kôksoak river.

This river is reported to be navigable for vessels to 3 or 4 miles beyond the Hudson Bay Company's post at fort Chimo (situated 25 miles from the entrance), but boats may proceed for 70 to 80 miles. The bar

* The latest information received gives no description of the east coast of Ungava bay; and no mention is made of the islands, placed on the chart, northeast of the mouth of the Kôksoak River.

is nearly dry at low water, but the rise of tide is upward of 38 feet. Between fort Chimo and the entrance, the river, with a width varying from a quarter of a mile to $1\frac{1}{4}$ miles, flows in a N. by E. direction through a barren undulating country, and it is said generally freezes over in the second week in January. The ice breaks up in the middle of June, but owing to the northern ice, and the prevalence of northeast winds at the entrance, the river is seldom clear till much later.

The tides run with great rapidity, and in the narrowest part of the river, named Deep narrows, there are at springs whirlpools dangerous for boats. At the entrance there is, with spring ebb and northerly winds, a race dangerous for small vessels.

Con-na-ráu-ya (Low dark point), characterized in its name, is the east entrance point of Kôksoak river and has a cairn 6 or 8 feet high near the extreme, which should be visible from a distance of 2 or 3 miles.

A boulder, which covers at high water lies W. $\frac{1}{4}$ S. half a mile distant from the point. The bar extends in a northwesterly direction from the same point.

Nau-yau-si-tik (Gull rock), situated WSW. $1\frac{1}{2}$ miles distant from Cong-na-ráu-ya, is a double island, the summit of which, 20 feet high, is on the eastern portion. This island, bearing SE. $\frac{1}{4}$ E., marks the inner edge of the bar.

Anchor island, 20 feet high and close to Ai-sha-vúk-ta-lik, is apparently steep-to.

The inner boulder, on the east side of the channel, lies NE. by N. $1\frac{1}{2}$ miles distant from the north point of Anchor island, and dries at about half-tide.

A reef extends from the shoal bight between Cong-na-ráu-ya and Ai-sha-vúk-ta-lik, the outer part of which, awash at high-water springs, bears NE. by E. $\frac{3}{4}$ E. $1\frac{1}{4}$ miles from the north point of Anchor island.

The Wort is a sharp and conspicuous hill 165 feet high over the east shore of the river, about a mile distant to the southward of Anchor island.

Ned's fishing place (latitude $58^{\circ} 30' 30''$ N., longitude $68^{\circ} 6' 45''$ W.) is a small indentation on the east shore of the river, $1\frac{1}{4}$ miles distant to the southward of Anchor island.

Water and wood may be had from a brook here, and although no wood grows near the mouth of the river, a considerable quantity of drift-wood may be picked up on the banks of the river above high-water mark.

I-nuk-shuk-tu-yuk (Beacon point) is a ragged undefined point; near it is a conspicuous little hill.

A wooden beacon has been erected on a hill 125 feet above high water,

situated on the west shore of Kôksoak river, at a little more than a mile distant from the point and one-third of a mile from the bank of the river.

I-nuk-shi-li-gá-luk (Big rock point), so called from a large conspicuous rock near the extreme, is the first decided point north of Kôksoak river, and bears NW. $\frac{3}{4}$ N. about 17 miles distant from Cong-na-ráu-ya.

Directions.—Na Ro-ai-yet having been made, or the entrance to the river being approached, a course should be steered till the Wort is brought to bear southwest, but a vessel should not take the bar till after half-flood, and the lead should be kept constantly going. Steer with the Wort bearing southwest till the beacon on the opposite point bears SW. $\frac{1}{2}$ W., when the course must be altered for the beacon and that bearing kept on till the the Wort bears S.

A good mark for the outer part of the bar is the first low point $5\frac{1}{2}$ miles southeast of Cong-na-ráu-ya, a little open east of the latter, bearing SE. $\frac{3}{4}$ E.

When the Wort bears S. the inner boulder on the east shore of the river will be passed, and a course may be steered for the entrance to the river.

Temporary anchorage may be obtained in 7 fathoms, mud, at a third of a mile distant to the northward of Anchor island.

The track herein mentioned is that used by the steam-vessel *Labrador*, drawing 14 feet, but it is said there are passages between the three rocks to the westward. Probably deeper water might be found between them than on the track hitherto used, where, at low-water springs, it nearly dries.

Pilots.—Vessels should on no account attempt to ascend the Kôksoak river without a pilot; but wishing to proceed to the Hudson Bay Company's post at fort Chimo, a boat should be sent to Ned's fishing-place, and if no pilot be there, should proceed to the Post with the flood-tide and return with the ebb.

Tides.—It is high water, full and change, at the entrance of Kôksoak river at 8h. 52m.; springs rise $38\frac{1}{2}$ feet.

At fort Chimo, at 10h. (approximate), rise 25 feet. The rise and fall of the tide is said to cease 25 miles beyond fort Chimo. The streams turn $1\frac{1}{4}$ hours after high and low water, and in the narrows run at the rate of four or five knots.

Chapel hill, 415 feet high, is a good mark for recognizing the Post, from which it is distant $2\frac{1}{2}$ miles to the northeastward.

Fort Chimo is visited once a year by the *Labrador*, when the year's supplies are landed and past year's returns shipped, consisting principally of furs, cured deer skins, salt salmon, seal, and white porpoise oil. The staff at the post consists of two officers and eight men, all Europeans.

The observation spot at fort Chimo is in latitude $58^{\circ} 8' 45''$ N., longitude $68^{\circ} 16' 15''$ W.

Currents.—There is said to be a tolerably constant though feeble current along the shores of Ungava bay, setting south on the west side and east on the south side of the bay; a boat which had drifted out of the Kôksoak river being eventually picked up at the mouth of George river.

From observations and from information received on the subject, a vessel in running her distance off the northern Labrador coast should make allowance for a southerly current of 12 miles in the 24 hours. Owing to its irregularity, not more than half that amount will probably be experienced on the average in the offing; but close to some of the headlands the current for a short distance runs with a velocity of two knots an hour and possibly more.

TABLE OF POSITIONS

FOR THE

COASTS OF NEWFOUNDLAND AND LABRADOR.

Place.	Exact location.	Latitude north.	Longitude west.	Authority.
Aillick harbor.....	Spot ½ mile S. of Cape Mokkovik.	55 13 33	59 8 18	Commander Maxwell, R.N.
Amour point.....	Light-house	51 27 35	56 50 53	Captain Orlebar, R. N.
Baccallen island.....	Light-house	48 08 58	52 47 32	Commander Maxwell, R.N.
Battle islands.....	N.E. extreme of Double island.	52 15 36	55 32 20	Admiral Bayfield, R. N.
Belle-isle.....	Light-house	51 53 00	55 22 15	Captain Orlebar, R. N.
Burgeo.....	Summit of Eclipse island	47 36 12	57 36 52	Commander Maxwell, R.N.
Cape Bauld.....	N. extreme	51 38 48	55 25 03	Captain Orlebar, R. N.
Cape Bonavista.....	Light-house	48 42 11	53 04 35	Commander Maxwell, R.N.
Cape Harrison.....	North extreme	54 55 50	57 56 30	Captain Chimmo, R. N.
Cape Race.....	Light-house	46 39 24	53 04 20	Captain Orlebar, R. N.
Cape Ray.....	S. extreme	47 37 02	59 18 15	Admiral Bayfield, R. N.
Cape St. John.....	Summit of Gull island	49 59 54	55 21 33	Commander Maxwell, R.N.
Cape St. Lewis.....	Small peninsula on S.E. point.	52 21 16	55 38 25	Admiral Bayfield, R. N.
Cartwright harbor.....	Caribou castle	53 42 37	56 59 50	Lieutenant Gravener, R.N.
Eclipse harbor.....	E. side.....	59 48 00	64 07 15	Lieut. Commander Murray, U. S. N.
Funk island.....	Summit	49 45 29	53 10 49	Commander Kerr, R. N.
Greenly island.....	Light-house	51 22 35	57 10 50	Admiral Bayfield, R. N.
Heart's content.....	Episcopal church.....	47 52 35	53 22 21	United States Coast and Geodetic Survey.
Hopedale harbor.....	Observation spot.....	55 27 04	60 12 24	Captain Chimmo, R. N.
Indian harbor.....	Pomeroy island, observation spot.	54 26 49	57 12 53	Commander Maxwell, R.N.
Little Placentia harbor	Observation spot on west side of Cooper cove.	47 17 55	53 58 35	Do.
Nain.....	Observation spot on north side of harbor.	56 32 51	61 40 41	Do.
Nachvak bay.....	Hudson Bay Company's post.	59 04 00	63 51 30	Do.
Occasional harbor.....	East summit of Twin island.	52 40 08	55 44 19	Do.
Outer Gannet island.....	Summit	54 00 05	56 31 48	Do.
Rich point.....	West extreme	50 41 39	57 24 20	Admiral Bayfield, R. N.
Roundhill island.....	Summit.....	53 26 10	55 36 05	Commander Maxwell, R.N.
Saddle island.....	Summit.....	57 35 00	61 19 00	Do.
St. Francis harbor.....	Summit of Cape St. Francis.	52 33 34	55 41 30	Do.
St. John's harbor.....	Chain rock battery	47 34 02	52 40 47	Admiral Bayfield, R. N.
St. Paul island.....	N.E. light-house	47 13 50	60 08 20	Do.
St. Paul island.....	SW. light-house	47 11 20	60 09 36	Do.
St. Pierre island.....	United States Coast Survey station.	46 46 51	56 10 36	United States Coast and Geodetic Survey.
Venison tickle.....	Flag-staff on Venison island.	52 58 09	55 45 55	Do.
Webeck island.....	Harbor rock	54 54 27	58 01 51	Captain Chimmo, R. N.
York point.....	East extreme	51 57 53	55 52 50	Admiral Bayfield, R. N.

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